PUBLIC USE OF LOCAL FOODS IN THE TANANA VALLEY:

UNDERSTANDINGS OF PRODUCERS AND LOW-INCOME COMMUNITY MEMBERS

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MEMBERS

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Abstract

This thesis explores factors that affect local food use in the Tanana Valley region of Alaska. Alaskan public discourses increasingly link local food production to a more sustainable and secure state and community food supply. However, current local food system development in the United States is marked by signs of socially unequal distribution of the benefits of local food. In Spring 2011, semi-structured interviews and focus groups were conducted with agricultural producers and community members affiliated with the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), and the Farmers' Market Nutrition Program (FMNP). Results show that local food use is complex and tied to livelihood and daily concerns of both producers and consumers. Producers highlighted challenges in food production, and characterized public use of local foods as limited by insufficient production. WIC employees and FMNP recipients viewed convenience and cost as important determinants of local food use. This exploratory study contributes to a more complex understanding of the local food system in the Tanana Valley through close examination of the perceptions and life experiences of human actors in this food system.

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1 Introduction

Local food systems are considered an alternative way to structure modern human food systems, potentially in a way that is more likely to sustain life-supporting environmental conditions and greater human well-being. As laid out by the World Commission on Environment and Development (1987) in *Our Common Future* (the Bruntland Report), sustainable development requires both intergenerational and intra-generational equity in sharing the resources and benefits of the Earth's ecosystems. Thus, to achieve sustainable human communities, the goods that support human well-being should be equally accessible to all humans. Therefore, if local food systems are meant to contribute to the creation of more sustainable ways of organizing modern human food systems, both the food and the inclusion in processes of transforming food systems should be equitably distributed and accessible to diverse social and economic groups. Current local food system development in the United States, however, is marked by signs of unequal distribution of the benefits of local food systems, particularly for people of lower socio-economic status (Durrenberger 2002; Guthman 2008; Guthman et al. 2006; Hinrichs and Kremer 2002; Lang 2010; Macias 2008; Perez et al. 2003).

Sources of local food commonly studied in the United States include Community Supported Agriculture (CSA) operations, farmers' markets, and community gardens. Membership in CSAs in the United States is characteristically composed of people from higher educational and socio-economic groups (Durrenberger 2002; Hinrichs and Kremer 2002; Lang 2010; Perez et al. 2003). Some studies also found differential use in the patronage of farmers' markets (Slocum 2007), and Guthman (2008) even labels these markets "white spaces". In contrast, other studies report signs that community gardens are relatively more inclusive of lower-income and working-class people, as well as ethnic minorities (Macias 2008; Meadow 2009). Observations of these forms of unequal use have led to the perception that local food access is mainly a problem of the high cost of local foods, and a tendency for these markets to develop in higher-income areas. However, attempts to broaden use and increase access to local foods, based on an

assumption of income barriers, have had limited success. Further, no consensus has yet formed on what motivates people to use these sources of food.

Community Supported Agriculture (CSA) is a way of marketing local foods in which producers sell "shares" of their produce to "members" at the beginning of a season. In return, these members then receive a weekly supply of produce throughout the season. Shares are often a few hundred dollars and paid in a lump sum at the beginning of the growing season, however some CSAs have alternative payment plans and options in which members exchange farm labor for part or all of their produce share. In a study of a program to provide low-cost CSA shares to low-income community members, Hinrichs and Kremer (2002) found that although the recipients of these discounted shares had low incomes, they tended to be socially advantaged in some other way, such as by being more highly educated. Studies of what motivates consumers to use CSAs have found that these consumers are primarily interested in having fresh, safe, and healthy produce for themselves and their families (Durrenberger 2002; Lang 2010; Perez et al. 2003). These values have clashed with those of some CSA operators and local food advocates who place high value on community-building and helping to connect people with local ecosystems (DeLind 1999; Henderson and Van En 2007). As of now, it is not clear why some consumers choose to consume and engage in local food systems while others do not.

In this thesis, I report on an exploratory case study of public use of local foods in the Tanana Valley region of Alaska. The purpose of this study is to contribute to a better understanding of public use of local foods. In particular, I was interested in searching for factors that motivate the use of, or increase access to, local foods, as well as factors that prevent or decrease use of local foods. The findings from this study are based on semi-structured, in-depth personal and focus group interviews. Interview participants were selected from three different groups in the Fairbanks-Delta region of the Tanana Valley. Agricultural producers, employees of the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), and WIC and Senior Farmers' Market Nutrition Program coupon recipients were interviewed for their perspectives on public use of, and

access to, local foods in the area. My goal was to explore this topic with actors in the local food system that could describe their thoughts, views, and experiences related to use of local foods. This exploration is intended to help expand the current understanding of what factors contribute to present patterns of local food consumption.

1.1 Personal Biography and Relationship to Research Issues

Acknowledging the effect of my own perspective, a key consideration in ethnographic research, is important in preparing readers to fully understand the context and scope within which my findings apply. During the analysis process I became aware of my predisposition for viewing problems as community problems and inviting people to engage with these concerns in terms of public good. My life experiences as a low-income mother and life-long home food producer are also relevant to understanding my choices and interpretations in this research.

Influenced by my concerns for food security and sustainability, my approach to the issue of food access was to think of local food as something which individuals should be able to access as a benefit of food-secure and sustainable communities. Thus, my questions for farmers encouraged them to engage with these large-scale ideas and to explore connections between their roles as business people and also as potential participants in addressing food security and sustainability in their community. In some ways this asked farmers to speak both as business owners and as public servants or citizens. The mixing of these frames of reference also allowed for an exploration of tensions and connections between these two roles. Although the issue of state and communitywide food security is increasingly tied to Alaska food production, reviewing my interview and focus group transcripts revealed a tendency for producers to speak about the viability of their personal farm and small farms in general.

I have been a WIC recipient. I gave birth to my son when I was 21 years old. I was a bachelor's degree student at the time and had a very low income. I used WIC benefits from the time of my pregnancy until my son was a few years old. I also used Farmers'

Market Nutrition Program coupons at the Tanana Valley Farmers Market during this time, so I have experience using WIC benefits to obtain local foods.

As a child I had my own vegetable garden and raised dairy goats and chickens with my family. I learned that I enjoyed eating food that I had grown or helped to produce. It was fun, interesting, and satisfying. It also required a great deal of work and dedication. Getting up at 5:30 in the morning to milk goats was not always something I looked forward to. However, these experiences have given me a fondness and respect for producing food on a small scale. One reason I think small-scale production, in which much labor is done by hand or with a few small machines, is beneficial compared to industrial-scale production is that producers have more direct contact with ecosystems upon which their food production depends. This contact can inspire heightened awareness and stewardship of ecosystems. From my perspective, this is an important qualitative difference in small farm production regardless of whether or not a producer is using organic, biodynamic, or sustainable principles in production.

For me, the idea of people consuming foods procured from ecosystems in close proximity to where they live is a good thing. Similar to the authors of some of the papers I review in Chapter 2, I think that connecting to local ecosystems by producing and consuming local foods will lead people to greater knowledge of how, where, and by whom these foods were produced. This kind of knowledge and awareness can help humans be better prepared to solve existing environmental and social problems, and also to confront new challenges brought about by changes in the Earth's climate. That said, I also think many of the critiques of local food system manifestations, also reviewed in Chapter 2, justify due caution. While some goals of alternative food systems, such as reduced carbon emissions (Weber and Matthews 2008), are not presently being clearly achieved according to some studies, this does not necessarily mean success with these goals will not eventually be found or shown. So, for the purposes of this study, I assume that achieving more localized food systems is a worthy goal and that expansion of public use of local foods is desirable and necessary in this endeavor.

1.2 Chapter Summary

In the following chapters I will contextualize, describe and discuss my research and key findings. Chapter 2 offers a review of literature relevant to use of local food in the United States and Alaska, and will explain what this research project offers to the larger discussion of food security, sustainability, and the potential of local food to address these issues. Chapter 3 describes my case study and research methods. Chapter 4 presents my analysis of key findings. Finally, in Chapter 5 I discuss implications of this research for understanding public use of local foods in the Tanana Valley and elsewhere, and suggest ways that this understanding might be applied and improved with further research.

2 Literature Review

2.1 Introduction

Use of local foods is one way in which members of the public can benefit from alternative food systems. However, this benefit may not be shared equally across social groups, and the reasons for this are currently unclear. Food systems focused on sustainable agriculture and local foods are thought to promote ecological health and human well-being. Proposed benefits and goals include better quality food, less environmentally destructive food production, enhanced community resilience, decreased vulnerability to changes and threats, stronger local economies, and a whole host of positive qualities connected with sustainability of human communities and global ecosystems (Carolan 2007; Grey 2000; Henderson and Van En 2007; Hendrickson and Heffernan 2002; Hornborg 2007; Kloppenburg et al. 1996; Kloppenburg et al. 2000; Lyson 2005; Sundkvist et al. 2005). With so much promise, understanding why some members of the public use local foods and others do not is a matter of great import for sustainable human systems, which promote ecological stewardship and social justice.

First, I will discuss the proposed benefits and critical analyses of local food systems on both global and United States scales. Then I will review studies of public engagement with local foods. Unequal public use and access is one of the suggested problems with current local food manifestations in the United States and is a key part of the justification and significance of this research. I will outline the concepts of use and access as they pertain to local foods and review relevant studies of access to, and use of, local foods in the contiguous United States and Alaska. Finally, I propose that public use of local foods is not well understood and explain how I intend to further current understandings of this issue through an exploratory case study in the Tanana Valley, Alaska.

2.1.1 Terms and Scope of this Study

I will use several key terms in this thesis, which I outline as follows. I will use "local food" as my main term of analysis and define it as food procured, produced,

distributed, and consumed in the same general area. For the purposes of this study, local foods are any foods procured from ecosystems in Alaska. "Access to local foods" concerns the ability of a person to obtain and use local foods for their personal or household consumption. "Local food use" is the choice and act of a person to use local foods for personal consumption. I will denote the Tanana Valley Farmers Market with the capitalized phrase "Farmers Market," and use the lowercased "farmers' market" in cases not referring to a specific market. A "producer" is a person who makes at least part of their income from growing agricultural products or raising livestock. A "consumer" is a person who does not produce food or agricultural products for a living. This person could, however be involved in home gardening, food production, or food procurement for personal consumption.

Although my research inquiry and review of literature is centered on agricultural food products, I also consider wild foods that are hunted and gathered as local foods. The inclusion of wild foods is important for some participants in this study and also for discourses of community and personal self-sufficiency. However, exploration of issues of access to, or use of, wild foods is outside the scope of this thesis. Thus, the literature reviewed here mainly pertains to agriculturally produced local foods. My concept of local food systems is inclusive, allowing associations of local foods with sustainable agriculture, organic agriculture, agro-ecological principles, community food security, and other alternatives to the mainstream food system. While these various alternative systems and agricultural practices are not synonymous, they share many methods, goals, and proponents. Thus, I view pursuit of more localized food systems as complementary to the enterprise of sustainable agriculture and other efforts to achieve sustainable, secure, and just food systems.

2.2 Proposed Benefits of Local Food Systems

Local food systems offer many potential social and ecological benefits. Proponents of food systems that rely on locally produced foods and agricultural inputs, such as soil fertilizers and livestock feed, have argued these systems will promote ecological

sustainability, social justice, rural development, and stronger social capital within communities (Cox et al. 2008; Grey 2000; Henderson and Van En 2007; Kloppenburg et al. 1996; Lyson 2005; Sundkvist et al. 2005). Local food system discourse, like that of other alternative food systems, is largely embedded in a narrative in which the benefits of these alternatives are seen most clearly when viewed in opposition to a globally distributed, corporately dominated, profit-motivated food system that has a distant, impersonal, or "anonymous" character and employs synthetic fertilizers, harmful pesticides, genetically modified crops, and industrial methods on massive scales (Grey 2000; Hinrichs 2000; Kloppenburg et al. 1996; Renting et al. 2003). Although a sharp dichotomy between these alternative and mainstream food systems may not be clear in reality (DuPuis and Goodman 2005; Hinrichs 2000), the distinctions in food production practices and connection to place and community are an important part of the rationale behind benefits of alternatives such as local food systems.

2.2.1 Local Food Systems: Definitions and Associations

The concept of local food systems is invoked in many different settings, and has a variety of meanings and associations. Recently, local food systems have been associated with a growth in numbers of such direct-marketing strategies as farmers' markets and Community Supported Agriculture (CSA) (Grey 2000; Johnston and Baker 2005; Martinez et al. 2010). Meadow (2009:18) uses the term "food-system localization" to describe "the process of meeting a community's nutritional needs by shifting at least some food production to within the community." Focus on local or proximate food systems have been conceptualized and analyzed in discussions including those of traditional agriculture (Altieri et al. 1987; Fazzino 2010), sustainable agriculture (Hassanein 1999; Trauger 2007), agroecology (Altieri 1995; Tomich et al. 2011), organic agriculture (DeLind 2000), permaculture (Veteto and Lockyer 2008), short food supply chains (Renting et al. 2003), food miles (Pirog and Benjamin 2003; Weber and Matthews 2008), community food security (Allen 1999; Johnston and Baker 2005), and local food movements (DeLind 2011). In a United States Department of Agriculture

(USDA) Economic Research Report titled *Local Food Systems,* Martinez et al. (2010) review the use of different definitions of local food, observing that there is no widely accepted, regulated definition of local food. This report prioritizes geography as a key determinant of local food systems, but also explains that local foods tend to be connected with "small farms that are committed to place," short food supply chains in which producers and consumers are more closely connected, ecologically and socially sustainable farming methods, and various social movements (Martinez et al. 2010:4). Indeed, local, alternative, and sustainable agriculture and food movements often share similar goals and a common attempt to differentiate themselves, or even depart entirely, from the globally distributed, industrially produced and corporately owned characteristics of the mainstream food system.

2.2.2 Problems with the Mainstream Food System

Alternative food movements in the United States have arisen in reaction to pervasive problems in mainstream agriculture and the current globalized food system (Grey 2000). Internationally, global industrial agriculture has been criticized as a source of water pollution, a cause of biodiversity loss, a driver of the plundering of biological resources from indigenous populations, and leading to the decline of many small-scale farming livelihoods (Grey 2000; Shiva 2000; Fazzino 2004; Sundkvist et al. 2005). The environmental damage, food contamination epidemics, poor labor conditions, and failure to achieve multiple aspects of food security are key reasons for popular and academic criticism of the current global mainstream food system.

Recent declines in biodiversity in both agro-ecosystems and "natural" ecosystems, have been caused by, among other factors, modern technological and economic shifts toward crop uniformity, small numbers of commercially demanded crop varieties, commercially motivated spread of select seeds, fertilizers and pesticides, as well as neoliberal trade policies (Thrupp 2000). Sundkvist et al. (2005) outline the modern trend toward large-scale, industrial operations, which center on fossil fuel-based crop intensification, crop specialization, distancing of production and consumption, and

corporate concentration and homogenization of the food market. They found that this trend has disconnected farmers from ecosystems and consumers from their food source. This disconnected system has resulted in humans misunderstanding or being unaware of environmental "feedback" signals and consequences, allowing for damage to social-ecological systems, including the loss of ecological knowledge, declines in biodiversity, and eutrophication of aquatic ecosystems (Sundkvist et al. 2005).

Several studies indicate that the advances of the Green Revolution, and a globalized economy driven by neoliberal economic paradigms, have not provided food security by almost any measure (Fazzino 2004), be it alleviation of hunger (Allen 1999; Cederstrom and D'Costa 1998; Tarasuk and Eakin 2003), sustainable production practices (Johnston and Baker 2005), or provision of culturally appropriate foods for all people (Fazzino 2008; Fazzino 2010; Fazzino and Loring 2009; Loring and Gerlach 2009; Shiva 2000). Cederstrom and D'Costa (1998) describe how food security has declined in many developing nations while simultaneously rising in developed countries, and propose that global food insecurity is a matter of unequal distribution rather than insufficient production. Fazzino (2004) argues that globalization processes that encouraging neoliberal ideals have led to national and international trade and health policies that predominantly benefit industrial agribusiness rather than the poor and food-insecure. Buttel et al. (1985) argue that, like Green Revolution technologies, advances in biotechnology are more conducive to corporate profit than to alleviation of poverty and hunger. Western food systems have been especially poor at providing for the health and nutritional needs of indigenous peoples (Fazzino 2010; Fazzino and Loring 2009; Loring and Gerlach 2009).

Viewing agriculture through a lens of ecological resilience and vulnerability, Fraser et al. (2005:473) suggest that "modern agriculture, on which the cities of the world depend, is a system that is wealthy, tightly connected and non-diverse," and therefore, "has all the characteristics of an ecosystem vulnerable to serious disruption." Similarly, in an assessment of the current ability of worldwide agriculture to meet the goals of food security and environmental sustainability, Foley et al. (2011:5) express that

"high-efficiency, industrialized agriculture has many benefits, but it is vulnerable to disasters, including climatic disturbances, new diseases and economic calamities." However, an entirely local system may not be desirable for purposes of constructing a food system which will be resilient in the face of unforeseen disasters and unknown, yet expected, large social or environmental changes (Fraser et al. 2005; Meadow 2009). Agricultural practices and strategies such as organic production (DeLind 2000), permaculture (Veteto and Lockyer 2008), and localization of food systems (Kloppenburg et al. 1996; Lyson 2005; Sundkvist et al. 2005; Moberg 2009) have been suggested and pursued as potential solutions to the social and ecological ills of industrial agriculture embedded in modern capitalism and neoliberal economic paradigms.

2.2.3 Ecological Benefits

Some scholars believe that proximate (local) food production and consumption will further a drive for more sustainable production practices (see Kloppenburg et al. 1996; Lyson 2005; Sundkvist et al. 2005). The main premise here is that if we had full knowledge of how and by whom our food was produced, we would be compelled to choose more ethical, socially just, and environmentally sound practices than the mainstream food system currently uses. Concepts of "foodsheds" (Kloppenburg et al.1996), tighter "feedback loops" (Sundkvist et al. 2005), and "civic agriculture" (Lyson 2005) have been used to express the idea that community-based or localized food systems will engender greater knowledge and responsibility toward the ecological and social effects of food consumption choices.

2.2.4 Economic Benefits

Support of the local economy is also one of the touted benefits of local food production and consumption. Labels of origin have been noted, particularly in Europe, as a way in which a product's relationship to a locality is being used to signify quality and thus to enhance rural economies by generating higher profits for producers (Feagan 2007; Kneafsey 2010). In the United States, direct-marketing practices are a way of

improving security of farming livelihoods by shortening the food chain, or cutting out "middlemen" (Martinez et al. 2010; Schnell 2007). Martinez et al. (2010) document ways in which restaurants, stores, and institutions market local food as a sign of quality, representing fresher, tastier, more nutritious, trendy, and educational food choices. These qualities are among the sources of value that have been used to justify higher prices for local food sales (Martinez et al. 2010). Adams and Salois (2010) review studies of consumer preferences and willingness to pay for local and organic food. They find that, from 1984 to 2008, consumer preferences and willingness to pay a higher premium for food products appear to have shifted from organic to local. Thus, local foods and direct-marketing practices appear to benefit small producers and rural economies.

2.2.5 Social Benefits

A human commitment to place is a key value of the theoretical visions of sustainable food systems (Kloppenburg et al. 2000), "civic agriculture" (Lyson 2005), and "foodsheds" (Kloppenburg et al. 1996). Ethnographic methods, including participant observation, interviews, and surveys, have helped sketch some of the paths through which local food system participants are connecting with place and their communities. Using the example of the Kansas City Food Circle, Hendrickson and Heffernan (2002) propose that because producers and consumers know each other, relationships of social responsibility and trust are cultivated. This greater sense of social connectedness is believed to result in producers and consumers taking each other's needs into account as they "negotiate" the circumstances of food production (Hendrickson and Heffernan 2002:363). In a study of CSAs in Fairbanks, Alaska, Garcia et al. (2011) found that some producers feel strongly connected to their customers and derive part of their identity from their role as a provider of food for their neighbors and community. Meadow further (2009:5) notes, "The development of face-to-face relationships between and among farmers, small-scale processers, and consumers in which people reconnect and strengthen their communities is, perhaps, one of the most appealing aspects of food-system localization in this increasingly fast-paced, electronically linked society."

One of the fundamental motivations for food-system localization has been to recreate a sense of control over food procurement among those disenfranchised by the corporate-dominated, global economy. Meadow (2009:19) suggests that local food system initiatives can help to "fill the gaps" in food security and resilience left by the current, mainstream system. The concept of "community food security" supports the growth of localized food systems and is built on an understanding of food security that brings decisions about production and consumption closer to community members (Allen 1999). Development of local food systems can strengthen food security and decrease vulnerability. It allows communities to be more self-sufficient in meeting food needs and to have greater influence over food sources (Allen 1999; Hornborg 2007; Lyson 2005; Meadow 2009). Local food production supports diversity in the local food supply, thereby offering communities more flexible strategies for adapting to the suite of social and ecological changes and challenges facing them today.

2.2.6 Critiques

However, others are less convinced of the positive environmental, social, and economic effects of proximity in food procurement (see Born and Purcell 2006; DuPuis and Goodman 2005; Hinrichs 2003; Mariola 2008; Renting et al. 2003; Weber and Matthews 2008). Renting et al. (2003:398), employing a market and rural development-oriented approach, investigate "short food supply chains" and find that "it is still too early to judge their viability and efficiency in delivering goals of sustainable agriculture and rural development." Born and Purcell (2006) argue against privileging local food systems as inherently better, suggesting that the outcomes of strategies organized around scale depend on the agendas of the organizers rather than the scale. Mariola (2008:194) critiques the assumption that local food systems offer greater energy efficiency than the mainstream food system, arguing that local food systems also use vehicles and road systems and thus "are no less reliant upon society's fossil-fueled industrial infrastructure than that of long distance foods." Hinrichs (2003) finds the term "local" problematic and,

similarly to Born and Purcell (2006), argues that social equity and justice are not innately tied to more localized food systems.

While many academics question the claims of current local food movement discourse, many of these same scholars also suggest these problems can be resolved with honest reflection and evaluation of whether or not goals of long-term ecosystem health, food security, and social justice are being met (Allen 2010; DuPuis and Goodman 2005; DeLind 2011; Hinrichs 2003). Although proximity of food production and consumption alone may not spontaneously confer all of the hoped-for benefits of local or sustainable food systems, the social relationships involved may be key to the realization of these ideals. In fact, experiences and redefinitions of human relationships are key elements in what differentiates alternative food movements from industrial agricultural streams (DeLind 2000; Grey 2000; Hendrickson and Heffernan 2002). In many ways, local food systems activity depends on increased social interaction to carry out both its pragmatic activities of producing and engaging in economic exchange around food, and also the broader ideals of increasing awareness, influencing behavior change, and encouraging social and environmental responsibility.

2.3 The Problem of Unequal Use of and Access to Local Foods

Although there is great potential for local food systems to provide social, ecological, and economic benefits, current evidence shows that these benefits are unequally shared across social groups. Many within the American local food and community food security movements are concerned that these movements are not sufficiently meeting their aims in the area of social justice and equitable access to the claimed benefits of these movements. DeLind (2011), for example, decries trends toward the local food movement becoming a fad that allows membership to be individually purchased rather than collectively built. Studies of CSAs and farmers' markets have found a strong tendency for patrons of these institutions to come largely from elite and advantaged groups such as the more highly educated, the wealthy, and white people (Hinrichs and Kremer 2002; Durrenberger 2002; Guthman 2008; Macias 2008; Lang

2010). Allen (2010) suggests that, particularly in the United States, historically built structural inequalities must be addressed to reconcile goals of justice and economic and ecological sustainability. Some efforts have recently been made to overcome these structural inequalities (see Andreatta et al. 2008; Hinrichs and Kremer 2002; Johnston and Baker 2005). However, the patterns persist. In the United States, the current market for local foods tends to be relegated to relatively limited locations and social demographics (Lang 2010; Macias 2008; Schnell 2007; Slocum 2007). To realize significant progress toward the anticipated environmental and social benefits of food system localization, these alternative forms of food production need to be more widely adopted and serve a larger proportion of human food needs.

Before continuing, I want to say something about what I see as the conceptual differences between access to local foods and use of local foods. Access is a term commonly used in discussions of food deserts (see Lane et al. 2008; Larsen and Gilliland 2009; Meadow 2009; Pearson et al. 2005). The term food desert is a way of conceptualizing a space, often an urban space, in which desirable (healthy) foods are either not physically present (available), or are difficult to obtain (accessible) due to barriers such as the high price of food or the unavailability of transportation or safe routes to reach sources of food (Lane et al. 2008; Pearson et al. 2005).

An underlying premise of studying access to particular foods or food sources is that the chosen foods are, in fact, desired or considered "good" for some reason. Thus, in a region with no "good" foods available or accessible, people are at risk and are at a disadvantage compared to areas in which "good" foods are present and accessible. In this light, regional disparities in access to "good" food are both a public health concern and an issue of justice. Therefore, when *access* to local foods is studied, it implies local food is desirable to a general population, and may even imply local food is better than other sources of food. In contrast, studies of the *use* of local food may take a more neutral stance and can examine how and by whom local foods are used, or not used as the case may be, and for what reasons. For the purposes of this study, it is appropriate to

review studies measuring both access to, and use of, local foods. In both cases, patterns of local food markets reflect a socially unequal characteristic.

2.3.1 Evidence of Unequal Use of Local Foods in the United States

Some scholarly work on local food and related alternative food practice proposes that these food alternatives are mainly used and constructed by particular, elite social groups. Some have argued that local food spaces, messages, and practices, including those of farmers' markets and alternative food co-ops, are infused with markers and discourses of "whiteness" (Slocum 2007; Guthman 2008). Slocum (2007:531) draws on participant observation within "community food" organizations, cooperative food markets, and farmers' markets in arguing, "whiteness is an organizing feature of alternative food practices." In describing farmers' market shopping environments in Minnesota she notes, "Shopping local is often shopping white," and that "the capacity to shop in alternative food tends to be an economically and culturally middle class thing to do" (Slocum 2007:527). Guthman (2008) proposes that white people predominantly populate alternative food institutions, and substantiates this hypothesis with her own observations, a survey of perceptions and views of CSA and farmers' market managers, and a few studies that reflect similar results. Based on this evidence, she critiques alternative food movement depictions farmers' markets and CSAs as racially neutral, and local and organic produce as universally desirable and accessible. She argues that farmers' markets and CSAs have "aesthetic appeal" for privileged whites that identify with an idealized agricultural past, a past marked by injustice for members of some ethnic minorities (Guthman 2008).

Research on CSAs in the United States also reveals demographically unequal participation. A 2001 survey of CSA members on the Central Coast of California found members are overwhelmingly "European-American" and have higher levels of education and income than the surrounding population (Perez et al. 2003). They highlight the contrast between 90 percent of CSA members reporting themselves as "European-American" and 51 percent of the local population being of this demographic (Perez et al.

2003:2). Drawing on a 2000 survey of members, Lang (2010) profiles the growth of a CSA in Maryland from its inception to the present day. He finds that, compared to its beginnings, the CSA has grown to be more inclusive of lower-income consumers. In general, however, this CSA currently falls in line with the privileged membership found in other CSAs, made up of mainly white, female, middle-class, and college educated members (Lang 2010). Durrenberger (2002) similarly finds, in a survey of CSAs in Central Pennsylvania, that CSA members tend to have high incomes and levels of education. This pattern of income and education has also recently been found in CSA membership in Fairbanks, Alaska (Garcia et al. 2010).

In contrast, community gardens have been noted as potentially more inclusive than other forms of local food activity (Macias 2008; Sokolovsky 2011), and descriptions of community garden practices reveal significant social interaction and learning (Meadow 2009). A study of CSA, farmers' market, and community garden practices in Vermont revealed that social equity and integration may vary among these sources of local foods (Macias 2008). The author found that CSA members are more exclusively from higher educational and socio-economic groups than are those who utilize the community garden and farmers' markets in the area (Macias 2008). Meadow (2009), in a survey of community gardeners in Fairbanks, Alaska, found people from a range of social classes participate in this means of local food production.

2.3.2 Explanations for Patterns of Use: Motivations, Access, and Predictors

Given evidence of unequal use of local foods, many studies are designed with the intention of discovering causes for patterns of use. Some research has focused on what motivates people to purchase or be involved with sources of local foods. Studies of CSAs have found that members are typically most motivated to participate in a CSA for its high-quality produce, followed by concerns for a better environment, buying local, or supporting local farmers (Cone and Kakaliouras 2008; Durrenberger 2002; Lang 2010; Perez et al. 2003). The motivations of members have revealed discordance with the community-building motivations of some CSA operators and have been a source of

frustration for those producers (DeLind 1999; Henderson and Van En 2007). Nonattendance at farm celebrations and low participation in farm work are ways in which producer intentions of increasing community engagement are not being reciprocated by consumers (DeLind 1999; Garcia et al. 2011). This outcome runs counter to the idea that "embedding food production and consumption in a community means that eaters respect that process [of building a community-centered food system] as much as they desire the food that they eat" (Hendrickson and Heffernan 2002). Durrenberger (2002:50) proposes, "The future of the CSA movement lies in the overlap between the motives of the members and operators more than in the distance between corporate accounting practices and CSA methods, the difference between supermarket prices and CSA shares, or in the warm-glow effects for farmers."

Use of local food has also been examined from the perspective of access in terms of monetary affordability and physical accessibility, especially for people with low incomes. Low-income community members are especially vulnerable to food insecurity (Coleman-Jensen et al. 2011) and related health problems (Lane et al. 2008), even within the mainstream food system. According to a USDA report on household food security in 2010, 14.5 percent of households in the U.S. were food insecure at some point during the year, a situation often connected with low incomes (Coleman-Jensen et al. 2011). This has recently been studied using the concept of "food deserts", areas without sufficient quantities of healthy, affordable, and personally acceptable food (Lane et al. 2008; Larsen and Gilliland 2009; Meadow 2009; Pearson et al. 2005). I address this issue because it is tied to intentions of certain local food initiatives, especially community food security, to develop a food system that can provide food security for all individuals in a community (Allen 1999; Guthman et al. 2006; Johnston and Baker 2005).

Studies of low-income people's access to local foods tend to assume that local foods are more expensive than mainstream sources, though evidence shows that this is not always the case (see Larsen and Gilliland 2009). For example, in a study of local food access in Fairbanks, Alaska, Meadow (2009:97) states that the problem of "inequitable food access [is] due to the generally higher prices in LFS (local food

system) initiatives and often greater time required for participation." She argues that foods produced on small scales with sustainable methods and marketed locally will necessarily cost more than foods produced by large-scale industrial methods due to low economies of scale, lack of subsidies, and financial and regulatory barriers to mainstream market penetration (Meadow 2009). From this perspective, there appears to be a tension between securing stable livelihoods for small-scale farmers and keeping prices of food affordable for the majority of consumers (Allen 1999; Guthman et al. 2006). Some scholars suggest that the conundrum of providing adequate incomes to farmers while setting affordable produce prices for the broad spectrum of the local community must be mediated by government entitlement programs (Allen 1999; Guthman et al. 2006; Johnston and Baker 2005).

Finally, factors that predict local food use have been explored. In a survey of farmers' market and CSA managers in California, CSA managers cited cost, education, time, and greater health and food quality concerns as reasons that higher-income people tend to be their customer base (Guthman et al. 2006). Kolodinsky and Pelch (1997) construct a regression model to predict CSA membership in Vermont, and find that the factors that best predict CSA membership are higher education, finding out about CSAs through word-of-mouth, whether the person both buys organic *and* lists political, economic, and social issues as most important in choosing winter produce, and does not have children. Results on the effect of income in the decision to join a CSA were inconclusive (Kolodinsky and Pelch 1997). This suggests that the conditions that influence usage of CSAs as a source of local foods are complex and not simply a matter of having a high enough income to purchase a share.

2.3.3 Investigations and Conceptions of Access

Socially unequal trends in use of local foods have been addressed through research and interventions. Offering subsidized CSA shares to low-income community members has revealed complexities in improving access and social inclusion. Hinrichs and Kremer (2002) explore how subsidized CSA shares affect the inclusiveness of a

Midwestern CSA in terms of social class, using a survey of both subsidized and non-subsidized households in the CSA. When measured by income, subsidized shares did increase participation of lower-income households. However, several of these households had members privileged by high educations, higher-class occupations, or preexisting social connections with the CSA (Hinrichs and Kremer 2002). Thus, even when programs encourage low-income participation, they may still end up attracting membership that falls in line with other characteristics of unequal use of local foods.

Local food has also been looked to as a way of improving food access in general. Larsen and Gilliland (2009) found that the introduction of a farmers' market in a low-income neighborhood in Ontario, Canada, which had previously been a food desert, could resolve problems with access to healthy food. After only two years of operation, this farmers' market had contributed significantly to a decrease in cost and an increase in variety of healthy foods in this neighborhood, to the extent that the authors suggest this area was no longer a food desert (Larsen and Gilliland 2009). Andreatta et al. (2008) report on a project that addresses both cost and physical accessibility of local foods. Multiple organizations, including a food policy council, a university, and a faith-based organization, collaborated in providing low-income community members in North Carolina with free CSA shares, conditional on participation in the study. This project also improved convenience for consumers by providing educational materials about local farms, markets, and food (including recipes) as well as home-delivery of CSA shares for those in need of this help. They state, "Essentially an attempt was made to remove all the barriers to food access of fresh farm products" (Andreatta et al. 2008:139). When interviewed at the end of the season, participating individuals reported changes in eating habits including eating and buying greater quantities and variety of fresh vegetables. In some ways, these changes in eating and shopping habits can be seen as signs that this program not only improved local food access, but access to fresh produce in general. Thus, part of the barrier to fresh, local food products may be connected with the food items themselves and not only with their comparatively higher cost or more distant markets.

Although involving low-income populations in alternative food markets is seen as challenging and potentially in conflict with farmers having a sufficient income, entitlement programs such as Food Stamps, the Farmers' Market Nutrition Program (FMNP) and the Supplemental Nutrition Program for Women, Infants and Children (WIC) have offered some help (Allen 1999, Guthman et al. 2006, Meadow 2012). A 2004-2005 study in California asked managers of CSAs and farmers' markets to consider their willingness, ability, and accomplishments in encouraging low-income consumers to purchase food from them. In this study, significant correlations were found between greater institutional capacity (i.e. age of market, number of farmers, and money spent at market) and the number of ways a market had addressed food access and affordability. They suggest, "More established markets with more revenue have the cushion to experiment with such ventures" (Guthman et al. 2006:672). Managers of farmers' markets estimate higher low-income participation at their markets than did CSA managers. Farmers' markets also used entitlement programs such as FMNP vouchers and Food Stamp benefits (78 percent of respondents in California), whereas CSAs did not use these at all (Guthman et al. 2006).

2.3.4 Complications with Current Conceptions of Access to Local Foods

Food consumption is a complex issue and unequal use of local foods among various social groups may be influenced by factors beyond affordability and accessibility. Studies of food consumption tend to show that people of low socio-economic status consume fewer fruits and vegetables, low-fat foods, low-salt products, and less dietary fiber (Turrell and Kavanagh 2006; Toivonen 1997), and may experience more constraints in consuming home-cooked meals (McLaughlin et al. 2003; Jabs et al. 2007). Age, gender, household structure (i.e. single parent families) (McLaughlin et al. 2003; Jabs et al. 2007), ethnicity (Fazzino 2010), and race (Popkin et al. 1996) are factors important to understanding differential food choices, food security, and related health outcomes. Guthman et al. (2006) propose that ideological factors contribute to lower rates of low-income participation in local food initiatives.

Structural factors, such as cost of foods, distance to supermarkets, and poverty, are prominent themes discussed in studies of socio-economic and class differences in food consumption. Low fruit and vegetable consumption has been linked to higher prevalence of certain cancers and cardiovascular disease (Robertson et al. 2006) and has been a key focus of studies on food deserts and food security of low socio-economic status households and neighborhoods. Structural factors in food deserts are also seen as barriers to healthy diets (Larsen and Gilliland 2009; Lane et al. 2008). Some suggest that poor households cope with limited budgets in meeting their food needs by choosing relatively high-energy, low-price sugars and fats over low-calorie vegetables when money is scarce (Robertson et al. 2006). People from neighborhoods with low incomes and low levels of education are thought to struggle with time for meal preparation (Jabs et al. 2007), limited means of transportation (Meadow 2012), and financially affording or physically accessing healthy foods (Allen 1999; Guthman et al. 2006; Lane et al. 2008; Meadow 2012).

Studies of food security and access normally do not explicitly measure the ability of individuals to freely choose and fulfill their preferred diet. Rather they investigate purchasing and consumption of foods chosen by the researchers and are often based on dietary recommendations from an authoritative source (e.g. National Academy of Science, United States Department of Agriculture, Food and Agriculture Organization). Thus, terms like "access" allude to presumptions about what optimal food choices consist of, and in effect prescribe or assume a kind of universal desirability of certain foods.

The influential nature of choice and context in food selection is seen in cases in which people of low socio-economic status do not fit expectations of having less healthy diets, or may not choose the "optimal" foods even when barriers are reduced. In a postal survey comparing the fruit and vegetable consumption patterns between areas varying in socio-economic status and distance to a supermarket, Pearson et al. (2005) found that structural barriers were not effective predictors of fruit and vegetable consumption. In their study, price of produce, distance to food outlet, and problems with transportation

did not show a statistically significant effect on the patterns of actual fruit and vegetable consumption, whereas gender and age did show statistical significance. This suggests that choice of food may be significantly influenced by social and cultural factors. Toivonen (1997) found that, in Finland, the explanatory power of class in understanding food choice has decreased from 1966 to 1990, but maintains that class boundaries are still clear for the professional and working classes. For Toivonen (1997:335), this finding, coupled with the fact that income differences between classes in Finland have decreased, suggests, "Some income equalization does not change the cultural differences. Workers still drink more milk and eat more sausage than the upper class, who still eat more fresh vegetables and fruits than workers."

2.3.5 Access to Local Foods in the Tanana Valley and across Alaska

Local food production is currently being linked to improved food security for Alaska by academics, food producers, and people who desire and are able to influence policy. These include, university researchers and professionals (Caster 2011; Helfferich and Tarnai 2010; Lewis and Schlutt 2011; Loring and Gerlach 2009; Meadow 2012), the Alaska Food Policy Council (2012), Alaska Community Agriculture Association (Kell 2011), U.S. Senator for Alaska, Mark Begich (letter to Edward Knipling, April 1, 2011), and director of the USDA's Alaska Farm Service Agency (Consenstein 2010). Access to local food is also being integrated into recent food policy activities in Alaska. In its *2012-2015 Strategic Plan*, the Alaska Food Policy Council defines several goals, objectives and strategies. Goal 1 of this plan is that "all Alaskans have access to affordable, healthy (preferably local) foods," and "Objective 1a," meant to support this goal, is to "increase access, availability and affordability of local foods to end consumers" (Alaska Food Policy Council 2012:8).

Local foods (vegetables) are currently less affordable and less accessible in Fairbanks, in terms of physical distance, than those available at mainstream food outlets (Meadow 2012). Additionally, a 2009 study of CSA operations in Fairbanks indicates that membership is skewed toward households with higher incomes, higher education,

and who self-identify as European-American (Garcia et al. 2010). Thus, local foods may not be equally enjoyed and appreciated in Fairbanks.

Alison Meadow's 2009 study in Fairbanks evaluated the potential for the local food system and ecosystem to meet the current population's food needs in terms of physical and financial accessibility and nutrition. In a scenario-building exercise, Meadow (2009) found that the Fairbanks North Star Borough has the capacity, in terms of suitable agricultural land, to support the basic nutritional needs (as defined by her selection of nutrient and calorie requirements set by the USDA) of the current population. However, she notes that much of this suitable land has already been developed as residential and commercial land. One limitation of Meadow's (2009) study is that she only pursued fruit and vegetable sources of food.

In assessing disparities in access to local food markets, Meadow (2012) found that there was no statistical difference in food-outlet distance (for both local and mainstream vendors) between above-median and below-median household income groups in the Fairbanks North Star Borough. However, there was a statistically significant difference in distance between the main local food outlets and non-local food outlets for the population in general (Meadow 2012). She also tracks a trend of supermarkets "drifting" from Downtown Fairbanks toward outlying residential and higher-income areas. She found that as population rose in Fairbanks, the number of grocery stores did not increase in relation to it, but rather fewer stores came to serve larger numbers of people over the years – from 2,200 persons per supermarket in 1965 to 10,832 persons in 2007 (Meadow 2009).

Increasing food security and community resilience was a key focus of Meadow's (2009) study and she provides some recommendations for accomplishing these goals. One of her main contributions is in furthering the empirical exploration of the concept of a resilient food system, which happens when "food access and food security are applied to a long temporal scale" (Meadow 2009:17). Food in Fairbanks is vulnerable because the nearest warehouses that supply food to the local retail grocery stores are located in Anchorage and Seattle, leaving an estimated two to three days' worth of food in stores in

the event of a transportation failure (Meadow 2009). Thus, local foods may be a source of food security, especially considering the relatively remote location of Fairbanks (Meadow 2012). However, food choices will have to undergo fairly dramatic changes if more food is to be sourced locally in Fairbanks (Meadow 2009:48). Meadow (2009) also recommends that the FMNP be better-funded and that local food outlets should increase their presence in low-income neighborhoods.

Using a survey and interviews with patrons of the Tanana Valley Farmers Market (Farmers Market) in 2009, Devenport (2011) offers information about the food choices, values and perceptions of local residents who shop at this market. Surveying 395 self-selected residents shopping at the Farmers Market, Devenport (2011) found that the issue of "health" was considered most important in grocery purchasing decisions from a list of eleven categories which also included "convenience," "environmental concerns," and "cheapest." An overwhelming majority of Farmers Market consumers in this study (98.2%) also reported they were willing to pay more for healthier foods. A consumer's level of income was found to have no statistically significant effect on whether or not they placed high value on the issue of health in grocery purchases, although level of education was strongly correlated with health valuation. Still, price was important to 62.8% of Farmers Market customers in this study (Devenport 2011). Farmers Market patrons have notably higher levels of education than the Fairbanks population. In Devenport's (2011) study, 62.5% of Farmers Market respondents had a bachelor's degree or higher, contrasting greatly with the 23.1% of the general Fairbanks population having this level of education. In terms of income, Devenport (2011) found that the mean and median income of Farmers Market shoppers surveyed was lower, although similar, to the surrounding population and that the number of individuals under the poverty line was also similar.

Research on food perceptions, attitudes, and purchasing behaviors of Alaskan consumers exists from across several decades. In a 1992 study of farmers' market and roadside stand patrons in Alaska, Swanson and Lewis (1993) report 42% of respondents were college graduates, 17% of these having completed graduate degrees. Similar to

studies of motivation for participation in Community Supported Agriculture (CSA) operations, food qualities such as flavor and freshness were found to be more important than cost among farmers' market patrons in Alaska. In a 1988 study of consumers in Fairbanks and Anchorage, Swanson and Lewis (1991) found that 43% of these urban consumers obtained some food from farmers' markets or roadside stands during the year and that these consumers tended to have higher incomes and higher levels of education. Price was found to be of key importance in choice of food product for 53% of their respondents (Swanson and Lewis 1991).

2.4 The Need to Better Understand what Influences Use of Local Foods

The factors that influence local food use are not clearly understood. Studies of local food access and use often limit their investigations to specific sources of local foods (e.g. farmers' markets) or predefined determinants of access or use (e.g. cost and distance) (see Larsen and Gilliland 2009, Hinrichs and Kremer 2002, Meadow 2012). In explaining the socially advantaged patterns of local food use, studies have examined or assumed that motivations, cost, distance, and economic status are key factors. These studies overlook issues of choice, class-related food patterns, and complex aspects of social contexts, including family dynamics. Framing the choice to buy local foods as a matter of affordability limits the discussion and obscures consideration of non-monetary factors in local food consumption.

As a step to further our understanding of the current asymmetrical participation in certain local food system activities, I have set out to explore what influences public use of local foods. This study examines both consumers' and producers' views on the state of public use of local foods, and on factors and conditions they think might influence this state of use. I purposefully cast a broad net in my discussions with these participants, to allow for a more expansive exploration of social and ideological influences on local food use, as well as potential financial or structural barriers. The result is a depiction of the perceptions and attitudes that influence both production and consumption of local foods in the Tanana Valley region of Alaska.

3 Methods

3.1 Overall Approach and Rationale of the Research

In this study I explored the issue of public use of local, agriculturally produced foods through a case study in the Fairbanks-Delta region of the Tanana Valley in Interior Alaska. I interviewed agricultural producers, employees of the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), as well as recipients of WIC and Senior Farmers' Market Nutrition Program (FMNP) benefits. A total of 24 individuals participated in the six personal interviews and three focus groups in this study. All participants were recruited within a research protocol approved by the University of Alaska Fairbanks Institutional Review Board (see Appendix E).

3.1.1 Research Questions

The overall research question I sought to address in this study was, "What factors influence use of local foods by residents of the Fairbanks-Delta region?" Related questions I pursued were: (1) "What is the state of public access to local, agriculturally produced foods in the Fairbanks-Delta region as perceived by local food producers and low-income community members?"; (2) "What characterizes people who purchase local food from direct-market sources such as farmers' markets and Community Supported Agriculture (CSA) operateions in the Fairbanks-Delta region?"; and (3) "What are the factors that influence the state and character of public use of local foods in the Fairbanks-Delta region?"

3.1.2 Research Design

By interviewing people with different roles in the community, I planned to gain an understanding of their thoughts and perspectives on local foods and the factors that affect the use of these foods by community members. My goal was to open up this topic for exploration in a way that would allow participants to share perceptions, insights, confusion, curiosity, theories, needs, and suggestions about public use of local foods in the Fairbanks-Delta region.

I organized my field research in phases that would allow the earlier phases to help shape and inform the later phases. For example, the interviews with producers were meant to help develop a more appropriate list of questions for the producer focus group. The stages of research were as follows:

Stage 1 – Interviews with area producers who sell and market food locally
Stage 2 – Focus group with producers who sell and market food locally
Stage 3 – Focus groups with community members who represent producer-defined parts of the community who use local foods less or who have more difficulty accessing local foods

The idea was to elicit producer perceptions of public use of local foods in Stages 1 and 2 and to allow their characterizations of which groups of the community use less local food to guide the selection of participants for the community-member focus groups in Stage 3.

There were several reasons I sought the perceptions of area producers on public use of and access to local foods. One was that producers, especially those who directly market their products, have a wealth of experience interacting with and thinking about community members who are their customers or who could be their customers. They have a livelihood interest in paying attention to who is consuming their food products and why. Also, producers could help to ground issues of access and use in an understanding of the challenges they face in producing, marketing, and distributing local foods. This could lend important insight into production and distribution factors that might explain patterns of local food use or barriers to local food access. Finally, it is important to examine this issue with producers because their future decisions might have an effect on generating greater or lesser local food involvement for certain community members. Producers are influential actors in local food systems and can help both to create a more holistic understanding of problems in food access and to effect positive change. The act of interviewing these producers was, thus, also an act of engaging them

in a process of problem exploration. This could lead to the eventual generation of solutions upon which they themselves could have a significant effect.

3.2 Sources of Data

3.2.1 Site Selection and Description

I recruited producers for interviews based on the criteria that they be currently engaged in producing and locally marketing agricultural food products in the Fairbanks-Delta region of the Tanana Valley, which is located in Interior Alaska (see Figure 3.1). I recruited from the Fairbanks-Delta region, in part, because this is a key area of active agricultural production in the State of Alaska. This area also has a history of agricultural activity dating back to the early 1900s.

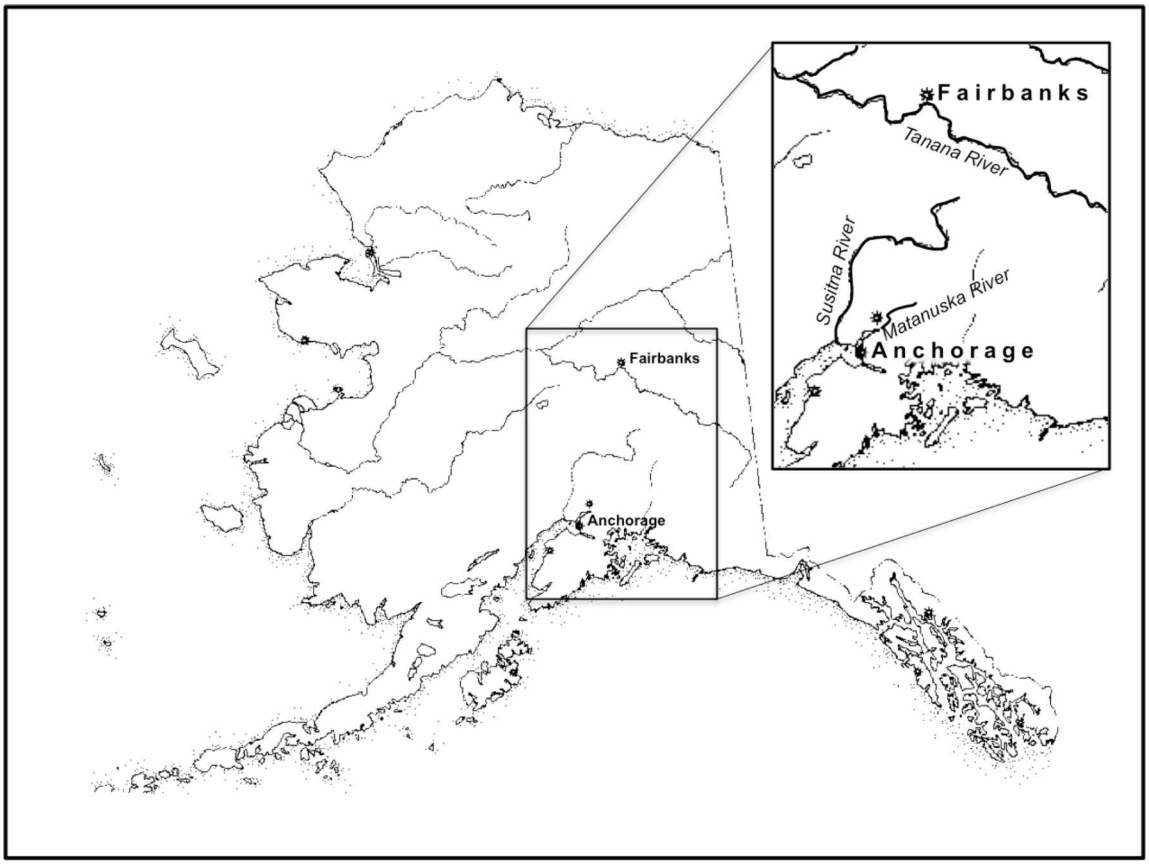

Figure 3.1 The State of Alaska with Detail of the Tanana and Matanuska Valleys

Early agricultural development in the Tanana Valley largely began with small farms and personal gardens to support the needs of settlements that developed rapidly around gold prospecting after this metal's discovery in the area in 1902 (Miller 1975; Pearson and Lewis 1989). Agriculture was supported by multiple developments including the launch of the Fairbanks experiment satiation in 1907, which helped supply local farmers with seeds suitable for the environment (Miller 1975; Shortridge 1976); the founding of the Tanana Valley Agriculture Association (TVAA) in 1917, in which farmers, aided by area businessmen and experiment station staff, set out to make agricultural self-sufficiency viable in Interior Alaska (Papp and Phillips 2007); and the installation of a flouring mill by the TVAA in 1921 (Shortridge 1976; Papp and Phillips 2007).

The Tanana and Matanuska Valleys are the two primary zones of agricultural development in Alaska (Miller 1975; Pearson and Lewis 1989). Anchorage and Fairbanks, the largest and second largest cities in Alaska, are located in the Matanuska and Tanana Valleys, respectively (see Figure 3.1). According to the United States Department of Agriculture (USDA 2009), Alaska ranks 50th among U.S. states in terms of total market value from agricultural sales. However, Alaska ranks 24th for barley acreage, most of which is grown in the Fairbanks Census Area, one of five census regions by which the USDA divides the state (see Figure 3.2), and 26th for bison livestock numbers, also raised in the Tanana Valley (USDA 2009). In 2009, the Matanuska Valley produced over $11.5 million worth of crops and livestock, while the Tanana Valley was the second most productive area in Alaska with crops and livestock valued at over $6 million (National Agricultural Statistics Service – Alaska Field Office 2010). In terms of units of crop commodities produced, as assessed in 2009, barley and potatoes are the two largest in Alaska, with vegetables, oats and hay being other significant crops (National Agricultural Statistics Service – Alaska Field Office 2010).

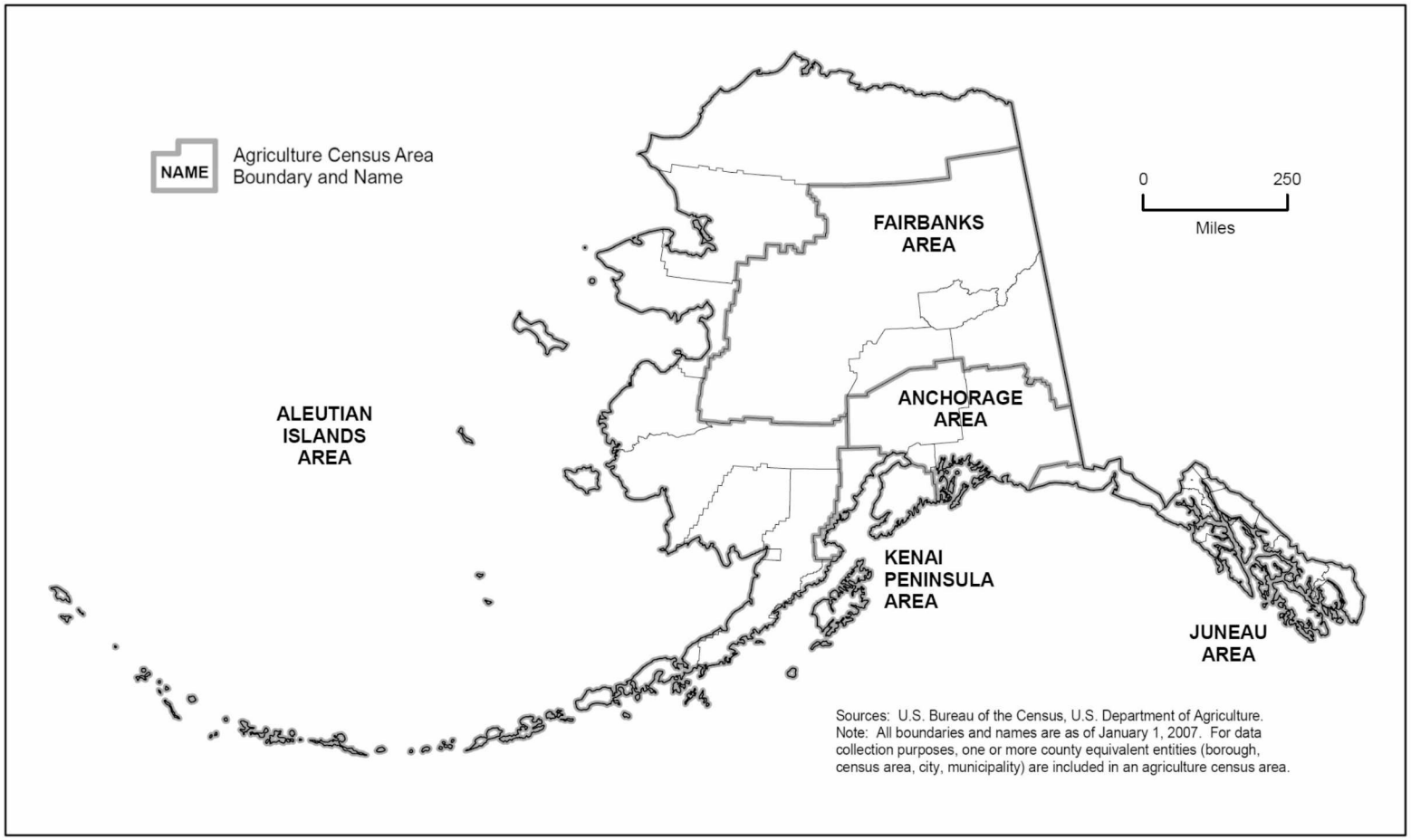

Figure 3.2 Agricultural Census Areas for Alaska (modified from USDA 2009)

In 2007, the USDA (2009) Census of Agriculture recorded 686 farms in Alaska. This census showed 212 farms in the Fairbanks Census Area. Between 2002 and 2007 the number of farms in the Fairbanks area grew 13 percent from 187 farms to 212. The Fairbanks Area had 110,780 acres of land in farms in 2007, and the average size of farm was 523 acres (USDA 2009).

Alternative agricultural markets in the Tanana Valley have seen recent growth. One Alaskan CSA farmer has spoken publicly about "the economic opportunity that exists as we ride this wave of popularity in 'eating local'" (Emers 2010). In Fairbanks, vulnerability of the mainstream food system has found a relatively tangible illustration in the estimate that there would be only two to three days worth of food in retail grocery stores should transportation lines fail (Meadow 2012). This risk is compounded by the fact that the storage warehouses from which this food is restocked are largely out of state (Meadow 2012). This depiction of a vulnerable and insecure food system has been a common rallying-cry for greater food self-sufficiency in Interior Alaska. The "three days of food" figure has been invoked by advocates of the still-developing Fairbanks Community Cooperative Market (n.d.), which asserts that it "works for health and sustainability by providing natural foods and products, promoting local suppliers, and offering consumer education in an open community centered environment." Meadow (2009) suggests that having a greater number of food outlet options, such as both mainstream imported-food markets, and local food outlets, would reduce vulnerability in the region.

In 2010 the Alaska Division of Agriculture recorded 28 farmers' markets in the state, three of which were in the Tanana Valley (Alaska Department of Natural Resources Division of Agriculture 2010). By 2012 the number had increased to 37, and the Tanana Valley had added two markets for a total of five (Alaska Department of Natural Resources Division of Agriculture 2012). In the spring of 2011, when this research was conducted, there were three farmers' markets in the Fairbanks-Delta area: the Tanana Valley Farmers Market, established in 1978 (Tanana Valley State Fair Association 2011), the Ester Community Market, begun in 2008, and the Highway's End

Farmers Market in Delta, started in 2002. According to its website, the Tanana Valley Farmers Market is the oldest farmers' market in the state (Tanana Valley Farmers Market 2012). During the summer of 2011, two more farmers' markets opened in the area, the Fairbanks Downtown Market in Fairbanks and the Christmas Creek Market in North Pole. The summer 2012 season shows all five markets in operation. The Tanana Valley Farmers Market operates from May to September on a limited schedule: 11am to 4pm on Wednesdays and Sundays, and 9am to 4pm on Saturdays.

The Tanana Valley Farmers Market (Farmers Market) is a key location at which to redeem WIC and Senior Farmers' Market Nutrition Program (FMNP) coupons. Other places in the Fairbanks-Delta region that have vendors accepting these coupons include several farms, a greenhouse, a few smaller farmers' markets, and some farm stands. In Alaska, WIC provides 25 dollars worth of FMNP coupons per summer, per participating household member (i.e. child or pregnant woman). Qualifying low-income seniors age 60 and older can also receive FMNP coupons of the same amount. Recipients can redeem these coupons for fresh, local fruit and vegetables from participating vendors.

3.2.2 Participant Selection

I did not attempt to recruit a statistically representative sample of producers, WIC employees or FMNP recipients. Rather, my goal was to identify topics that local food system actors find meaningful in relationship to public use of local food. My intention was to explore themes and connections that would contribute to an expanded understanding of local food use in a way that is informed and led by actors in the food system. I hope that this understanding will stimulate future research that incorporates the perspectives of local community members and key decision-makers who affect access to local agricultural foods.

Although I did not seek a representative sample of producers of any particular type, I did wish to recruit participants who could reflect the diversity of production in the region. The producers who participated in this study were mainly fruit and vegetable growers who marketed through CSAs and the Farmers Market. One livestock rancher

and one grain farmer also participated. Individual producer interviewees included six females and three males. The producer focus group consisted of three females and four males. Two of the producers in the focus group were not participants in individual interviews, giving a total of seven female producers and four male producers in this study.

The population of direct-market producers in the region is relatively small. In a 2010 survey concerning food production in Fairbanks, Caster (2011) identified 52 current fruit and vegetable producers in the Tanana Valley. The population of producers surveyed in Caster's (2011) study largely marketed through farmers' markets and CSAs. My study includes eight such producers. In 2007, the U.S. Census of Agriculture recorded 20 farms using CSA as a market for local produce in Alaska (USDA 2009). In June of 2010, the School of Natural Resources and Agricultural Sciences at the University of Alaska Fairbanks (UAF) listed 23 CSA operations in Alaska, seven of which had just begun CSA marketing that year (Helfferich 2010). However there is evidence that the number of CSAs is higher. In 2011, an Alaskan local agriculture organization listed four CSAs not on the UAF list (ACAA n.d.). Based on my observations of agriculture activities in the region, in 2011 there were approximately eight CSAs in the Fairbanks area. My sample included representatives from five of the eight CSAs in my study region.

The average net income per farm in the Fairbanks Area was $6,668 in 2007, with over half of the farms in the area making less than $10,000 in farm sales. Most principal operators of Fairbanks area farms are male (approximately 78 percent), as is the case statewide (approximately 76 percent). The average age of principal operators in 2007 was 57 years in the Fairbanks Area (USDA 2009).

I did not survey participants on their ages and exact dates when they started farming, however interviews and participant observation revealed details about occupational experience and relative age. Most producers in the study were middle-aged, however three producers were relatively younger and had children of elementary school age. Of the farms represented, four were well-established and the five farmers

interviewed from these farms were middle-aged or older and had been operating these farms for at least five years, some for over a decade. The four newer farms represented included one middle-aged couple, three relatively younger farmers with young children and one farmer of middle age with teenage children. These farms had all been in business for less than five years.

I initially selected producers based on the criteria that they currently produce and locally market agricultural food products for human consumption in the Fairbanks-Delta region. One producer from the Matanuska Valley was also included in the producer focus group. This producer was, like the majority of other producers in this focus group, attending the Sustainable Agriculture Research and Education (SARE) Conference. I planned my focus group to coincide with the SARE Conference to increase producer participation during the busy spring season. As the name implies, this conference had a focus on sustainable agriculture, and thus this context may have influenced the focus group discussion. This also indicates that producers in this study are particularly interested in sustainable forms of food production.

A manager at the WIC office recruited the WIC employees who participated in this study. She allowed me to use a time ordinarily scheduled for meetings to conduct the focus group with her employees. All nine WIC employee focus group participants were female. This focus group was not part of my initial research design, but was suggested by the WIC manager. I took this opportunity to interview WIC employees because they have experience interacting with WIC recipients, as well as distributing information and educating recipients on the use of FMNP coupons.

My original research design included focus groups with members of the community whom the agricultural producers in my study perceived as making less use of, or having less access to, local foods in the Fairbanks-Delta region. During interviews and focus groups, several producers mentioned low-income consumers as having less access to local foods. A number of producers also characterized WIC as influential in bringing in groups of the community to the Farmers Market who otherwise would not use this source of local foods. Because WIC recipients need to have a low income to

qualify for WIC benefits, this group fit both of these producer-defined groups. Thus, I selected WIC recipients as the focus group participants for Stage 3 of my research.

I recruited participants for the WIC and Senior FMNP coupon recipient focus group in the WIC office on a check pick up day. At this time, I introduced this study and myself and explained that I was looking for people to participate in a focus group about local foods. I then requested and gathered contact information from individuals who expressed interest in participating. Three females participated in this focus group. One was a recipient of Senior FMNP coupons and two were recipients of WIC FMNP coupons.

Recruiting recipients of WIC or Senior FMNP coupons was challenging. I spent several hours in the waiting area of the WIC office asking recipients if they would be interested in participating in a focus group discussion about local foods. I told them the discussion would be located at an area hotel, last about an hour and that lunch from the hotel would be provided for free. Of the 12 people who expressed interest and gave me their contact information, only three actually attended a focus group. Employees of WIC told me that it is especially difficult to engage the participation of WIC clients in any optional activity. To illustrate this difficulty, on the day that I was recruiting, a Cooperative Extension Service (CES) class on nutrition was also being held, and only one WIC recipient attended. Even this participant was distracted with phone text messages and seemed eager to leave as soon as possible. Afterward, the CES employee running the class suggested discontinuing the classes due to lack of attendance. In order to gain better participation in the future from the population of low-income seniors and young mothers in this region, a longer recruitment process and more flexible context for participation may be necessary.

3.3 Data-gathering Methods: Ethnographic Methods and Case Study Research

I used ethnographic methods of informant interview and participant observation to explore the topic of public use of local foods in a case study of the Fairbanks-Delta region of the Tanana Valley. I determined these methods would be best suited to gaining

an understanding of this issue from the perspective of people who experience and deal with local food use in their daily lives. Seeking this kind of perspective is important because it can help to keep research questions and projects abreast of shifting ideas and the needs of people in communities being studied. I was also interested in questioning common assumptions of what factors influence local food use and access by seeking perspectives of people who experience these issues within the context of their social lives, livelihoods and roles in their community.

3.3.1 Interviews

Talking to people and allowing them to explore these ideas in their own way and through their own lenses could allow assumptions of local food use to be, in some ways, tested against the impressions of people who witness choices to use or not use local foods on a daily basis. By opening the topic for exploration through conversation with stakeholders in the local food system, I hoped to shed light on some of the complex and diverse ways that people perceive and experience ideas of public use of local foods in the context of the activities, relationships, and daily events in their lives. In this way, we can ground future research in a fuller understanding of how members of a community experience, perceive, and make decisions about using sources of local foods. We can ask questions that are more effective at generating understandings of this issue that will resonate with community members and reflect the complexity and nuances experienced by people in local food systems.

3.3.2 Participant Observation

Part of the knowledge I draw from in interpreting the data I collected in this study comes from my personal experience. I have lived in Fairbanks for most of the last ten years, and participated in many aspects of local food activity in communities within the Fairbanks-Delta region. These experiences have informed every stage of my research, from my choice of topic, to research design, and from the way I conducted interviews, to how I categorized themes in the data.

I have volunteered with a local non-profit farm, Calypso Farm and Ecology Center, helping with public outreach on its Community Outreach and Social Justice Committee. On this committee I attended meetings and helped operate Calypso information tables at various community events, talking with members of the public about Calypso's work and the opportunities to learn about or purchase locally grown foods. I have also had a few chances to attend Calypso farm tours, and to help with farm and food distribution tasks such as weeding and assisting CSA members in collecting their weekly produce shares.

I have visited and helped with farm work on several of the other produce farms, at home and school gardens, and at a livestock ranch in the area. This has involved harvesting various fruits and vegetables, weeding, packaging produce for CSA distribution, helping build fences, and on one occasion, helping to catch a young wild hare that had been feeding on crops. My understanding of local agriculture and food has also been enhanced by my attendance at several conferences, including three annual SARE conferences in Alaska from 2010 through 2012, the 2011 Delta Farm Forum, and the Community Food Security Coalition's 2011 Food Policy Conference in Portland, Oregon.

Efforts are currently underway to open a cooperative market in Fairbanks. I have participated in some of the many activities and events that have supported the development of the Fairbanks Community Cooperative Market (FCCM) and its plans to open a grocery store in Downtown Fairbanks. I attended and became a founding member of the FCCM at its first major fundraising event in 2008. I also attended as a voting member the FCCM's First Annual Meeting and Harvest Fair in August of 2009, at which the bylaws were approved and the board of directors formed. In addition, I have participated in fundraising efforts, including fundraising meals and calling members to ask for funds.

In the summer of 2011, I served as an intern for the newly-developing, Alaska Community Agriculture Association (ACAA). As intern I assisted in ACAA's development by gathering feedback from members, guidance from well-established

organic and sustainable grower organizations, and information about options for funding and organizational structure.

In addition to the many food and agriculture activities in which I have participated in the Fairbanks-Delta area, I have learned about this region by living here. I was born in Fairbanks, my parents having lived and attended college here in the 1970s and 1980s. Although I mainly grew up in other regions of Alaska, I am connected with this place and its social and ecological environments in ways that I cannot easily, or briefly, explain. In middle and high school I spent summers in Fairbanks and reconnected with some of the social networks my parents were part of in their college days. Living, working, attending college, and raising a child in this area, I have experienced countless mundane events that form my understanding of what living here is like and how others and myself can participate in the communities of this region.

In essence, I have shared experiences of navigating constraints of daily-life and food procurement that are similar to the participants in this study. My set of experiences is certainly unique to me, but compared to someone new to the area, I have a lived knowledge that helps me to interpret the statements of participants. However, for the purposes of conducting this type of social science research, I also put a great deal of effort into keeping a stance of curiosity and caution toward my own assumptions. This perspective was especially important during interviews and guided the types of questions I asked. My intention was to be open to hearing things that would surprise or contradict my own understandings of public use of local foods in order to allow new ideas, connections, and themes to emerge from interview conversations.

3.3.3 Case Study Research

This research is designed to be a case study of public use of local foods in the Tanana Valley, Alaska. Case studies are highly suited to address complex problems (Yin 1989). In averaging knowledge gained in large-scale studies, we lose the specific details that reveal differences in unique spatial and temporal locations. When time and physical and mental resources can be focused on a smaller area, intricate details and connections

can be made that would not be available in a wider sample suited for statistical representativeness and generalizable results. These details, though, may present insights previously unavailable when overlooked for the sake of efficiency. It may be that insights discovered in the contextually rich data from one community can suggest similar characteristics in another. If researchers are diligent about recording their methods, assumptions, and reasoning, then one case study may also present a model that can be applied, with case-specific modification, to another community (Yin 1989). However, a key limitation in case-study research is that, while the depth of contextual data allows case studies to construct internally valid explanations and chains of evidence, the specificity to a limited region in space and time makes generalization of findings very difficult (Yin 1989). To date, large-scale comparative case studies that maintain consistency in methods and data collection are few. Moving toward generalizable knowledge through case studies and comparative case studies may appear slow. However, if the ultimate goal is accurate and useful knowledge, then this path may gain a competitive edge by making fewer errors in assessments of complex situations.

3.4 Data Collection

After settling on the idea of doing an exploratory study gauging stakeholder perceptions of public use of local foods, I began developing interview and focus group protocols. I first created a list of interview questions for producers (see Appendix A). These questions were designed to engage producers in a conversation about their livelihoods as farmers and to explore issues related to the local food system, the state of public use of local foods, and possible factors that affect the extent and character of public use of local foods. In early February 2011, I received help from two area producers in reviewing my research questions. They helped me edit and refine the interview questions to have a concise number that were understandable, well-articulated, and appropriate for agricultural producers in the region. Using their suggestions, I generated a new draft of the interview questions. I then sought peer feedback on these questions from within the university community. I developed focus group questions (see Appendix B) using this earlier feedback and with the help of peer review.

I submitted these research instruments along with an application to the Institutional Review Board at the University of Alaska Fairbanks, requesting exemption from full review. This exemption was granted in mid-February 2011 (See Appendix E). I then began recruiting local producers to participate in this study. In recruiting, I purposively selected producers based on my familiarity with area CSA producers and on recommendations from university faculty and other producers familiar with agricultural activity in the area.

I conducted both personal and focus group interviews. I informed all interviewees about the purposes and risks of participating in this study, and gained their voluntary consent to participate. The six personal interviews in this study consisted of either an individual producer or a husband and wife who produce foods in a partnership. Three interviews were one-on-one with just the interviewee and myself. I conducted three other interviews with a husband and wife together. A total of nine producers participated in personal interviews. Following the personal interviews, I conducted three focus-group interviews, which ranged from between three and nine participants. Each group was recruited based on shared characteristics. The first focus group consisted of agricultural producers, the second was composed of WIC employees from the same office, and the third included recipients of either WIC or Senior FMNP coupons.

Interviews were semi-structured. I had a list of questions, some of which were central to my research interests, while others were useful in opening topics of conversation that might reveal new insights or patterns, or help to focus the interviewee's attention on certain aspects of their lives and work. During producer interviews I made an effort to let participants have room to explore topics based on their interests. Thus, different interviews had different tones and focuses that were influenced by producers' interests and wishes to talk about certain topics. However, certain questions and issues were central to my research, and I made a point of directing conversations to these in each interview. Some of those central issues were: whether or not local food customers had particular personal characteristics that made them seem different from other community members; how the producer viewed the idea of

expanded public use of local foods in terms of quantity and percentage of total diet; what participants thought of the term and idea of a "Local Food Movement;" what factors might make it more or less difficult for consumers to access local foods; and what factors might influence some community members to buy local foods and others not.

Most interviews were held in the homes of interviewees. One interview took place in my office at a time when no other people were present. I attempted to keep the atmosphere of the interview casual and relaxed. In some cases I shared food, tea, or coffee with interviewees. Interviews lasted about one hour, but some were longer, the longest lasting two and a half hours. I did not compensate producers for their participation in interviews.

For the producer focus group, questions and prompt materials were compiled using questions that had proved helpful in previous personal interviews with producers, and findings from recent studies of local food marketing in the Tanana Valley. The focus group took place in a local hotel and lasted over two hours. Producers were compensated with a dinner catered by this hotel. Five of the participants for this focus group were recruited from the body of producers whom I had already interviewed. These producers had the advantage of having had additional time to think about the kind of questions I was asking. However, two producers recruited for this focus group had not been interviewed prior to this event. These producers engaged readily in the discussion and did not seem impeded by being less familiar with the purposes and questions of this study.

As mentioned earlier, one of these producers did not reside in the Fairbanks-Delta region. This producer, from the Matanuska Valley, was recruited for this focus group because she had a great deal of experience with agriculture in educational contexts as well as leadership in agricultural grower organizations. During the focus group, her participation was valuable in bringing a statewide perspective to the discussion. Most of the producers in this focus group were from the Fairbanks area and marketed produce mainly through the Farmers Market and CSAs. However, two producers were from Delta and were involved in production of livestock meat and grain. Their presence in the

focus group was extremely valuable in bringing diverse perspectives on local foods from the Delta area and other agricultural and food-marketing sectors.

For focus groups with FMNP-affiliated people, I formulated questions based on things I had learned from producer interviews, participant observation, and relevant academic literature. University colleagues reviewed these questions (see Appendices C and D). The focus group with WIC employees took place in the WIC office during a time normally scheduled for employee meetings, and participants had the choice to participate as part of their workday, or to do something else. I did not compensate these participants for their time. This focus group lasted about one hour. The WIC and Senior FMNP focus group was held in a local hotel and included a complementary lunch.

All interviews and focus groups were recorded with a digital audio recorder. The producer and FMNP recipient focus groups were also video-recorded. Due to the relatively more spontaneous nature and work setting of the WIC employee focus group, only audio was recorded. Each recording was transcribed using Express Scribe transcription software.

3.5 Data Analysis Procedures

I analyzed the interview data from this study in successive stages. I found that my interpretations developed more depth and complexity in the later stages. In March 2011, after the producer interviews and focus groups were completed, I undertook an initial phase of analysis in which I sought to discern particular social groups that producers viewed as having lower levels of local food use or access. This analysis of producer interviews led me to conclude that interviewing individuals associated with WIC might lend greater insight into local food use in the Tanana Valley.

I began a more detailed form of analysis in February 2012. In this phase I coded all of the transcripts for various topics (subjects or aspects of discussion) and looked for themes (recurring ideas or topics). To aid this coding, I used the qualitative analysis software NVivo 9. The process of coding consisted of importing transcript text into

NVivo 9, selecting passages of text, and labeling (coding) these passages as pertinent to one or more topics.

My choices in developing the set of coding topics that I used were important in how I interpreted the data. I developed these topics as follows. First, I reexamined my major research questions. Guided by the intention to address these questions, I made a list of key topics generated from my familiarity with the data and with literature on local food use and access. I then used NVivo 9 software to generate word frequency queries, which produced lists of the most common words in the interview transcripts. From these lists I selected what appeared to be the most common and relevant coding topics. I then began a preliminary round of coding in NVivo9 using this list of topics. Following the method of grounded theory, as I coded the data, if a new theme emerged strongly, I created a new coding topic for this theme. If I found that some topics in my list were less useful, I discarded them from my coding process. For the last round of coding, I reviewed the transcripts and coded based on this more complete list of topics.

The process of analyzing the transcripts in this study was an iterative one in which the act of reading, coding, and note-taking would stimulate and alter my interpretations of the data, and these interpretations would affect how I viewed and coded the data. As I coded, I kept a log of my actions and thoughts about the data. This allowed me to track changes in my ideas and conceptualization of my research problem, and to assess whether the data fit into this depiction or not. To illustrate how the process of coding and interpretation were related, I provide the following passage from my coding notes. Capitalized phrases represent codes. On February 8, 2012, I wrote:

> Since I've chosen to focus on what seem to be barriers to access, I've been conceptualizing most of the conversation in that context. However, mainly what farmers have been talking about up to now are the problems they see in the food system and what makes their livelihoods challenging. I have been coding most of this under Challenges to Farmers, which I have placed within Barriers to Access. However, I might consider making these Challenges a category unto themselves

> later. They have also touched on a little of the recent popularity of local food, and I have been coding this mainly under Personal Preference. Expressions that talk about how people value food and the ethics that go with them I have been coding under Personal Preference. I suppose what I am finding is that I want to simultaneously code barriers to access and avenues to access.

By the end of the coding process I had a strong sense of the key themes, patterns, and relationships among the topics in my data.

Finally, I annotated passages of text in the transcripts to pinpoint important ideas and quotes, and to record my interpretations. At the end of the coding and annotation process I compiled the entire list of annotations from all of the transcripts, and this formed a basic summary of what I considered the important points from the data. When I began to write my interpretations, I used this summary of transcript annotations, along with my field and coding notes, to determine the key subjects and findings that I discuss in Chapter 4.

3.6 Considerations

3.6.1 What the Data Represent

These data are intended to offer information about how some community members understand public use of local foods. They are not intended to be representative of the entire population of the Fairbanks-Delta area, or of any particular subgroup. Data collection methods employed relied on people to report their ideas, opinions, and perceptions. These data represent the subjective understandings of participants.

3.6.2 Ethical and Political Considerations

An important ethical consideration is that the main data for this study rely on the participation of human subjects. To protect participants, I undertook training in research ethics, gained approval of the research design by the Institutional Review Board at the University of Alaska Fairbanks, used pseudonyms in reporting on this research, and

ensured that participants were informed of the risks and their rights in voluntarily participating in this study. The setting of focus groups and interviews with more than one person, however, did not allow me to protect participants from having their responses identified with them by other participants in the same focus group or interview. Participants were informed of this point and I assumed that they gave only responses they were comfortable having other participants witness.

A consideration specific to the focus group with WIC employees is that of power dynamics. The fact that this focus group was held in a work setting, during normal working hours, may have influenced the decision to participate. Also, the fact that both senior and less senior employees were present together in this focus group could have influenced some of the responses and interactions of participants during the focus group. The most senior employee in the focus group was one of the more vocal participants. However, many other participants seemed comfortable speaking and sometimes disagreeing with this senior employee. Other participants spoke very little. I do not know whether this was due to a sense of discomfort in expressing their opinions in this context, a personality tendency, or because they had little to say on the topics being discussed.

4 Findings

4.1 Introduction and Summary of Key Findings

I began this project with a curiosity and concern about who is accessing local foods in the Fairbanks-Delta area and whether or not these foods are used equally across social groups. In part, this concern extends from propositions that more localized food systems are a key part of solutions to issues of food insecurity, vulnerability, and sustainability of communities in Alaska and other places (Allen 1999; Caster 2011; Hornborg 2007; Lyson 2005; Meadow 2012). In the context of sustainability and food security, these ideas imply a universal benefit to community members through the production and consumption of local foods. This suggests a normative stance that these foods are a resource, the benefits of which, in a just society, should be distributed equitably. In practice, however, these goals of food justice and equitable distribution of benefits appear to conflict with other concerns and constraints of local food activity, such as the ability of small farmers to maintain an economically desirable livelihood (Guthman et al. 2006). Some caution is appropriate, however, in interpreting unequal use of local foods as a case of inequitable distribution. It may be that these foods are equally available to all social groups, but are not used for reasons of personal choice. This chapter examines issues of socially equal use of local foods and factors that influence local food use and access.

In many ways the findings of my study confirm that use of local foods is complex and inextricably tied to the livelihood and daily concerns of both producers and consumers of local foods. Without people willing to produce the foods, there would be no agriculturally produced local food available for anyone. If obtaining and using local foods is more burdensome than most consumers are willing to accept, given the existence of other food procurement options, local food consumption will remain a limited, and likely demographically particular, activity. Key concerns of study participants were connected with meeting household and business needs of financial security and efficient use of personal time and energy.

Producers face many challenges in producing and marketing local foods, and their decisions affect the availability and accessibility of these foods. Maintaining a suitable income was a concern mentioned frequently by participating producers. There was agreement among these producers, that if more of the community wanted to eat local foods, production would need to increase from its current level. However, circumstances of individual farms and the personal lifestyle needs and desires of farmers caused several producers to scale back or limit production, or to change distribution of their food products.

Convenience and food cost were major concerns of consumers. Consumer decisions to use local food sources are influenced by the accessibility, affordability, convenience and desirability of the food and market, as well as personal life circumstances and stress. Employees administering the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) mainly discussed the Tanana Valley Farmers Market (Farmers Market), likely due to the fact that this is a well-established market that has regularly had vendors who accept Farmers' Market Nutrition Program (FMNP) coupons. Much of the analysis of local food use focuses on this particular venue, although WIC employees and FMNP coupon recipients also discussed other sources of local food including gardens, Community Supported Agriculture (CSA), small grocery stores, and wild foods.

Producers and WIC employees also cited knowledge of food, cooking and farming as an important influence on consumers' use of local foods. These forms of knowledge indicate there are many ways in which local food use can be broadened, sometimes blurring the lines between "consumer" and "producer". Producers, WIC employees, and FMNP recipients mentioned home and community gardening as signs of the growing local food movement and as a practical way of increasing the proportion of local food consumed by Alaskans. For the recipients of FMNP benefits, knowledge and interest in gardening, hunting, fishing, gathering wild foods, and other forms of subsistence and home food procurement were key ways they identified with the local food system.

4.2 Local Food Use, Market Awareness, and the Influence of Knowledge

4.2.1 Characteristics of Local Food Consumers

Producers and WIC employees struggled to characterize local food shoppers. At times, producers maintained that local food consumers were socially and politically diverse, while at other moments some of the same producers described distinctions between typical local food shoppers and other people. Nancy, a producer who markets through CSA and Farmers Market states simply, "The people that want local and who want quality, that's who you are selling to." Regarding political affiliations, Terry, a female CSA operator, explained that certain issues would cause division but that for public engagement with local foods, "I don't think there would be any lines drawn…. When it comes to farming, I don't think it divides people." Eugene, a relatively young producer with a farm in early stages of development, put it this way: "And you tend to see hippie liberals out there pushing the local food thing… and all of the sudden you meet some really conservative religious people who are into all the same things – republicans and democrats and everybody." Farmers Market and CSA producer, Meghan, described Farmers Market shoppers saying, "For Fairbanks, culturally, it's a real diverse group of people that come through the market, Whites, Blacks, Asians, you know, young people, middle-aged professional, blue collar, retirees. It covers the whole spectrum… yeah I see all kinds." Still, producers did identify social groups that they believed use local foods differently.

In discussions about which parts of the community used local foods less than others, producers often mentioned South Fairbanks and Downtown Fairbanks, people with low incomes (sometimes associated with South and Downtown Fairbanks being low-income areas), and members of the military. Several producers thought that the WIC and Senior FMNP was an effective solution to lack of involvement by members of these groups, especially those with young families, and believed that it had already changed the social mix of the Tanana Valley Farmers Market. Two producers very familiar with selling at the Farmers Market discussed the effect of WIC:

Meghan: The WIC program… Is a really –

[overlap]

Sue: Absolutely.

Meghan: It has been huge part for our farmers' market.

Sue: Mm hmm.

Meghan: Our growth of at least visitors per market day. Those WIC coupons [really make]–

[overlap]

Robert: Right and the demographic that comes through.

Meghan: Right.

CSA and Farmers Market producer, Eugene, said of WIC, "I think that it definitely is bringing people, and young families who don't seem like the general mold of the farmers' market shopper." Hesitating to typify the farmers' market consumer, he added, "but then again, like I say, maybe there's no mold to be had."

This reluctance to characterize local food shoppers was less apparent in the producer focus group. During this discussion, a livestock producer from Delta, Sue, asked, "Who buys from your CSAs and farmers' market? Mine - doctors and lawyers... definitely the higher end." Beth, a CSA farmer from the Matanuska Valley, proposed a connection between education and the demographic of local food users prodding, "Who's reading Michael Pollan? Who's reading those books?" Hannah replied, "Young college kids who just idealistically want to eat good food." This met with wide agreement among producers.

WIC employees did not all agree on which groups of their clients use farmers' markets less. Some suggested that rates of local food usage were lowest among young mothers, while others thought military moms use local foods least. One WIC employee suggested that some clients valued and used farmers' market produce as an expression of class position. She said of mothers in the Air Force, it is a "higher-class thing for them. Do you know what I'm saying? (mockingly) 'I do the organic. I do the fresh foods.'"

Defining who purchases local foods was not a straightforward activity for study participants.

4.2.2 Use of Farmers' Market Nutrition Program Coupons

While Farmers Market producers reported that the WIC program had caused a new influx of consumers to this market, they suggested, and WIC employees confirmed, that WIC and Senior FMNP coupons are largely underutilized. WIC statistics showed a 42 percent redemption rate of FMNP coupons in Alaska, of which 72 percent were Senior FMNP and not WIC FMNP coupons. WIC employees agreed that use of these coupons among their clients was low.

Some WIC employees shared frustration over rates of FMNP coupon usage. One said, "We do try and promote it as much as we can and try and spin a positive light. But even, obviously, with us doing as much as we can to promote it, they're just not using it." Another WIC employee, Cindy, added, "We definitely have people who love the Farmers Market and they're waiting for the farmers' market checks [FMNP coupons]. And those are the ones that are redeeming them every year." The underuse of FMNP coupons suggests that attempts to reduce costs in this manner may not address other important issues of access and equal distribution of local foods.

4.2.3 Public Awareness of Local Food Markets

In all my interviews, I specifically posed questions about public awareness of sources of local foods. Participants were uncertain about how widespread awareness of local food markets was among people in the region. While one WIC employee initially said much of the community knows about the Farmers Market, later she conceded that she was not aware of extensive advertising. She explained that she, herself, had found it difficult to learn exactly where the market was, even though she worked for WIC and helped distribute farmers' market checks. She said, "My first summer I had just heard bits and pieces. I was working here and I still had no idea. I'd never driven past it. So, I don't know how well they really do actually advertise it." Senior FMNP coupon

recipient, Mary, when asked about how many people she knew who used local foods said, “Not too many.” When asked why, she said, “There's not information. The information's not out enough.” This perception of a lack of advertising for local foods aligns with the fact that several producers said that word-of-mouth was the key way consumers find out about their products. Some producers who market through the Tanana Valley Farmers Market thought that much of the community was aware of Farmers Market, but chose not to come. One producer, Robert, put it this way, “I think it's probably communicated well, but I know there's also a big segment of the population that isn't interested in it for whatever reason.”

4.2.4 Effect of Knowledge and Education on Local Food Use

Producer and WIC employee participants believed that educating consumers about local food sources, food in general, and farming could increase the consumption of local, especially fresh, foods. While some farmers expressed exasperation over modern society’s lack of encouragement to consume local foods, WIC employees stated they spend a great deal of energy educating consumers about Farmers Market. One explained:

> Well I think we spend quite a bit of time talking about the Farmers Market, talking about all the great stuff, talking about when to go. Showing on a map how to get there, telling them about the times that it’s open. Telling them that the earlier you go, the better the selection. And a lot of these conversations are based on several years of experience in understanding why they don’t go.

Throughout interviews, producers expressed a belief that knowledge about food and farming increased consumer use and valuing of local foods. Several farmers credited popular books on food and agriculture for increasing public awareness and consumption of local foods. One CSA producer explained:

> I think in the past ten years, local farmers have really ridden a wave of people's awareness of locally grown foods. People's eating habits have changed, and they're much more interested in where their food comes from, and eating higher quality food too.... They're becoming much more educated about food nutrition I think. So, we're lucky for that.

During the producer focus group, discussion repeatedly turned to the perceived need for people to reconnect with the land, farms, and knowledge of where their food comes from. This was seen as important both in attracting new people to farming, and in generating familiarity with, appreciation of, and demand for local foods.

Knowledge of food production can also lead some consumers to purchase fewer local foods, because they start to grow or procure it themselves. Two CSA farmers shared stories of losing customers because these consumers had decided to grow their own food. One CSA producer, Maggie, told me, "I find people that are drawn to the CSA are also people that are drawn to growing themselves. And I would say that is our biggest loss of client[s].... And I love to lose a customer that way." Another CSA farmer told me of a family that had been a consistent member of their CSA for several years, but that "once their house is built they're going to start focusing on their garden." She went on to say, "a lot of our folks have come to us wanting to learn about gardening, and they'll come and work and learn about [it] and then go home and do it themselves, which is great." Each member of the FMNP recipient focus group had experience growing their own produce, hunting, fishing, or gathering wild foods. One WIC recipient explained that she did not purchase more food from Farmers Market than the amount of her FMNP checks, in part, because she has her own garden during the summer and does not need additional produce.

Some WIC employees suggested that purchasing foods in bulk quantities from Farmers Market was one way that clients get more value with their coupons at this market. They observed that buying large bags of carrots or potatoes at the end of the

season was an efficient way of using WIC coupons. Here, a WIC employee described how some knowledgeable people use Farmers Market:

> Some of the families that do participate a lot, they know to go right at the end of the season and so they're the ones that'll go in and get the big bag of carrots and the big bag of potatoes. And then they're done. They go right at the end. They know what they want. They're not going to go for anything else.

Another WIC employee added, "And generally at the end of the season, they'll cut you more of a deal."

However, the practice of buying in bulk was also seen as risky and inconvenient because it requires knowledge of food storage and the space for it. Difficulty with food storage was also mentioned during the WIC employee focus group as an obstacle to using fresh or bulk food of the kind available at Farmers Market. WIC employees saw the potential for spoilage as a problem with fresh foods. Two employees discussed this:

> **Ashley:** – tomatoes, bell peppers. I buy the same stuff every week and if I'm not on it every day, it goes bad.
>
> **Danny:** That's something I hear a lot from clients. They're like, 'I don't bother buying fresh because it… –
>
> **Ashley:** It just goes bad.

Although many WIC employees believed a large number of their clients were in need of education about food, nutrition, and cooking, the WIC and Senior FMNP coupon recipients in this study actively shared extensive knowledge of food, cooking, and food production. Although the sample of these recipients was very small and not statistically representative, this does suggest that low-income status does not necessarily indicate low knowledge about food and nutrition. However, the difficulty in recruiting more FMNP

coupon recipients may indicate that those who participated were especially knowledgeable and drawn to the idea of discussing local foods.

4.3 Food Production and Farming Livelihoods

4.3.1 Producer Perspectives on Increased Production of Local Foods

Many Tanana Valley farmers in this study expressed their view that levels of food production need to increase to accommodate expansion of local food use and access. Their answers to the following question illustrate this issue: "How would you describe your ideal food system for the Tanana Valley?" Responses tended to begin with ideas of expanded local agricultural production and development of new food-related infrastructure. When asked if they had a preference for a food system in which more food was procured locally, responses were usually affirmative and sometimes emphatically so. "That would be really cool," as one CSA farmer, Terry, put it. Another CSA producer, Meghan, said, "Well of course, yeah…. Oh. It'd be great. But I think that we need more producers. I don't think Fairbanks has enough agricultural producers on a large enough scale." The following discussion of what the ideal Tanana Valley food system would require took place during the producer focus group:

Meghan: Processing and storage.

Beth: Exactly. Some means of taking that short season and making it available year round, and then the education to teach people to eat those foods year round instead of looking for salads in the winter.

Robert: I think I answered that question that there would be a whole lot more people producing food –

Beth: Mm hmm, yeah.

Robert: – and not just trying to get a little bit more out of those of us who are producers right now, but like multiply it times ten or twenty or fifty or something.

Carl: I agree with the processing. I think that if you have three months basically

> to sell vegetables and fresh… stuff like that. Somehow we need to be able to produce enough that it can be processed and kept year round. I mean made available in maybe a different form, but year round.

Producers in this study earnestly engaged with the question of how to expand the local food system. Many of the areas of concern and challenge for producers discussed in the following section are related both to their personal farms and businesses, and also to considerations of the Fairbanks-Delta farming community and the future of local agriculture in Alaska in general.

Some farmers asserted that the current number of local farmers could produce more food during the short growing season. One farmer said, "Well you can grow a lot – you can grow huge amounts of it in this short window up here." Another postulated, "With the farmers that we have, I think we could supply more food to the community, I mean for sure." A grain farmer suggested that existing barley farmers in the area could produce much more, but were limited by consumer demand. He said, "The farmers in Delta raise… forty-five hundred acres of barley because that's how much we can sell. We could raise twenty-two thousand acres. We could raise fifty thousand acres if there was enough market." He suggested that milling local flour or supplying feed grain to livestock producers could encourage the growth of local grain production.

While community food security, especially in terms of having more local food production in the event of an emergency food shortage, was a concern expressed by many farmers, there was disagreement about the means and consequences of increased food production. Some farmers expressed a strong, even urgent, need to get new, young farmers to start producing more food. In contrast, one relatively new, young farmer, Eugene, thought that more farmers and food production would drive produce prices down and threaten farming livelihoods. He said, "I think that if there were too many more farmers, that… there would stand to be competition." During the producer focus group, Eugene engaged other producers in a discussion of the challenges that increased production might bring:

Eugene: One thing – I mean in addition to the need for more agriculture in Alaska – Before that can happen, though, I think that there's this huge infrastructural lack, and it would be nice to say, "let's have a thousand more farmers in Alaska." But right now it would be totally unsustainable –

Beth: Yeah.

Eugene: – and I'm not sure that there's – I mean that it's even developed enough to do that.

Sue: Are we not innovative enough? I keep struggling with this. I mean are we…

Eugene: I think we are, but we need the entrepreneur who's got the investment to build the freezer, storage place, or the place to do it. We need byproducts from other agriculture industries… so we don't have just barley here in the state to feed our animals. And then we can have a lot of farmers. But right now, we can't. And we're wanting to produce all this stuff and we're shipping up corn and all this soy and everything else from the Lower Forty-eight…. Before we can really have a million farmers here, we've got to be able to have a million farmers who can make a profit.

Beth: Make a living. Yeah. Exactly.

Robert: Yeah. That's a very vexing conundrum and it's –

Beth: It IS. Where do you start?

Robert: – really just one at a time.

Individual farmers had differing opinions on whether or not there is more demand for local food than there is production, or whether current production sufficiently meets demand. Some producers expressed agreement about a glut of demand during the focus group:

Robert: My whole take on this community is there's just demand, demand, demand out there.

Dwayne: Yeah. Yeah.

Beth: Okay.

Robert: It doesn't seem to matter who opens what –

[overlap]

Sue: It's bought. People buy it.

Robert: – shop or who comes to the Farmers Market. It's just – there's always a shortage.

Some CSA operators reported they have no problem selling all their shares, and that they often have requests for more shares than they are willing to provide. One well-established CSA operator claimed, "Whatever you can grow you can sell." On the other hand, Eugene, who markets both through a CSA and Farmers Market, described frustration and disappointment with the Farmers Market because he cannot consistently sell all the produce he brings. Another well-established CSA producer, Meghan, described her surprise at not being able to sell all of her potatoes the previous year: "I've always sold all my potatoes in the end of the season. But I put in extra rows last year. This year I probably won't do as many potatoes, and do more carrots."

Some farmers suggested that home gardening would be an important part of future scenarios in which more of the Tanana Valley population's diet is made up of local foods. I discussed this possibility with one producer:

Meghan: You know when it was more of that in the fifties, I would [guess] it was on an individual basis and not, you know, farmers producing a massive amount of food and selling it to the general population locally. I think that was not the case. That would be my guess.

Rachel: So more home gardens and –

Meghan: More home gardens. Yeah, I think that if you want to see more locally grown food, it's going to have to come from the individual.

4.3.2 Farmers' Challenges and their Influence on Local Food Availability

Livelihood and lifestyle issues were a major aspect of my discussions with producers. They discussed problems they faced in producing, marketing, distributing, and selling their products. Important producer needs included secure incomes, new farmers, suitable labor, more infrastructure, appropriate land, and efficient means of marketing. These concerns are reinforced in previous research (Caster 2011) that also found that Tanana Valley fruit and vegetable producers viewed infrastructure for storage, production, and processing, affordable labor, desirable land and financing, and dependable and suitable means of marketing foods as key limits on expansion of agriculture in the Tanana Valley.

Producer comments often revealed that issues producers face in making decisions for their businesses are inherently connected to issues consumers face in accessing the foods produced. At several points during interviews, producers discussed what influenced their decisions about the quantity or type of food they produced, or the methods by which they marketed it to consumers. These often incorporated many aspects of their business, family life, and lifestyle choices. These decisions also affected the options consumers had for purchasing locally produced foods.

4.3.2.1 Income and Livelihood Challenges

Achieving and maintaining a satisfactory farm income was a major concern for the producers in this study. In response to an interview question about what the public could do to be supportive to local farmers, Eugene said, "We need to make more money so that we can have the incentives to do this. I mean one of the big challenges is there's just no money in it." A grain producer, Carl, noted the problem of meeting consumers' demands for low prices: "I can't afford to sell it for less than that if I want to stay in business."

Some farmers characterized farming as an inherently low-wage occupation and emphasized that a low or insecure income may discourage new farmers. Describing problems with attracting new people to farming careers, a long-time producer, Carl, said, "I think one of the issues is compensation. I don't know a farmer who is in it for the

money. Most of us farm because we can't stand not to. I know that's the way I am." Robert, operator of a well-established farm, described the economic difficulty of establishing a farm business saying, "Just strictly from a business point of view… you don't just jump in and start making a quarter million a year, though it's perfectly possible. They just really don't evolve that way." Speaking of the risks presented by ecological changes Nancy, co-operator of this same farm, said, "I have no idea if we are going to still be farming in the next ten years."

Several producers in this study shared a sense of concern over the small number and aging population of farmers in their area, as well as nationally and globally. Some viewed the establishment of the next generation of farmers as a major problem. A few farmers portrayed the problem in terms of a social trend spurred by technological advances of the twentieth century. In this scenario, techniques and technology of the Green Revolution and industrial agriculture allowed for more food production with less human labor. These changes, coupled with new occupations, educational opportunities, and lifestyle amenities and comforts, led people "away from farms." Robert explains:

> If you stand at the Farmers Market table long enough you interact with all the seventy-plus-year-old generation, and they are the ones that actually grew up on farms, back when farms were really small and there were a lot of them. They know it really wasn't all that fun, with the cities and all the technology and the good jobs and all that. So farming in this country has sort of gotten a bad rap for that reason, just because it's drudgery work and you don't have to be particularly educated, although that helps immensely, and so everyone has just kind of moved away from the farms. Maybe part of what this is looking at is, how do people go back and work with the land again instead of letting someone else do it?

Producers spoke of how farming as an occupation was unattractive, difficult, or even impractical for many young people. They explained that potential new farmers may be discourage by the prospect of the hard, physical labor involved in farming. Other barriers

mentioned to new farmers getting established were the availability of affordable, accessible, and suitable land; the existence of loans or financial support for early farmers; and the expense of preparing land, obtaining tools, and building infrastructure.

Two producers expressed a strong desire to mentor and support new farmers. Farm internships or apprenticeships were recognized as one means of mentoring. Meghan, a CSA producer, related that some of her interns had chosen to continue working in agriculture saying, "I think that we have a great opportunity at that point to mentor young people into doing that. And that's why I'll take the time with a high-schooler, or a college student." Similarly, Sue described her dedication to encouraging interest in agriculture: "We always give educational tours on our farm. No matter if it's college down to elementary school…. I always am willing to talk to the youth." Exposing children and youth to farming was discussed as a way to educate about food and also to spark an interest and familiarity with farming that might later encourage a person to choose farming as an occupation.

4.3.2.2 Labor Challenges

Several producers remarked that it was difficult to secure skilled, consistent, and affordable farm labor. Some farmers using CSA arrangements expressed frustration with their attempts to get CSA members' or other community members' help with farm labor. They complained of low or inconsistent turnout on farm work-days, and the need to train and supervise inexperienced workers. A CSA farming couple discussed this in an interview:

> **Nancy:** It takes a lot to organize them. And that's the part we don't want to deal with, all that organizing…. You know. If you have to describe to somebody, "Well this head of lettuce is too big, this head of lettuce is slimy." You know, you can't do that. So -
>
> **Robert:** Right and particularly – and that's what's kind of interesting for CSA. We'll harvest twenty different things and we say, "Well, we're going to pick

> from this row of lettuce and we know we need forty heads and maybe there's sixty out there." And it's a funny thing where you can't just send someone out and tell them. They'll just pick the first forty they come to, and really you need the forty that are in the right stage of ready, and maybe that one will be ready next week. And so… a lot of it is really – you learn as you go along, and you spend more time trying to work with someone all the time, that really gets hard.

CSA producer, Terry, said of CSA members, "I would say it is not easy to get them here, unless they know about it and they like to do work and they like the environment. There's some families that never came, you know." With frustration she added, "We try really hard to entice people to come and do their hours, and like I said, some families just never come. And I don't really need to hear the excuses. I mean, I know you're busy, so am I!" This CSA operator found some success in offering "volunteer share" CSA memberships, in which certain members would pay a reduced rate in exchange for consistent farm labor. She says, "I couldn't do it without them actually… I physically couldn't do it by myself…. There were two volunteers last year that came pretty consistently on those [harvest] days and helped me."

For another CSA operator, Meghan, finding skilled labor either through wage labor or internships was a major source of stress. During the producer focus group she explained that one challenge in her business was finding, "a really good labor source that's educated." Several other producers agreed, and stated that they also had problems in this area. They noted that the level of education does not need to be very high. To this, CSA producer Robert added, "Right, but they need to know how to work, and not everybody in this day and age does." For Meghan, the expense of labor was an aspect of small-scale local food production she thought could be better understood by the general public. She said, "We don't have a migrant workforce here that's being paid you know, five, six, seven dollars an hour. I have to pay people between nine and twelve dollars an hour, and that's still cheap labor here. People don't understand that we have really a lot higher costs." Operators of another farm found their first experience using intern labor a

disappointment. The first intern they employed left part way through the season, forcing them to find another source of labor on short notice.

4.3.2.3 Lack of Infrastructure

Many producers believed that processing and preserving local foods would make a wider variety of foods available to more people. The major obstacle they saw to this was the lack of infrastructure to support storage, processing, and distribution of local food products. A major limitation on farming in Interior Alaska is the short growing season, and farmers saw much of the desired infrastructure as a means to extend their market season. They discussed flash freezing, canning, and flour milling as some of the processing and preserving methods that would allow local foods to be marketed beyond the regular growing season. Other infrastructure additions they thought would expand and extend the marketing and consumption of local foods included storage facilities to extend the shelf life of crops such as potatoes and carrots, an Alaska Department of Environmental Conservation (DEC)-approved kitchen to turn local meats into jerky, and refrigerated truck for reaching more distant markets within Alaska. Producers saw the capacity to process food into more marketable forms as a way to boost the growth of the local food market. They believed that with the additional infrastructure described above, that they could produce more food and reach a wider spectrum of the public, and that consumers could purchase and eat local foods for more of the year.

4.3.2.4 Land and Lifestyle Choices as Limits on Production Capacity

Finding land that fits a farmer's needs is not easy in the Fairbanks area. Size, location, price and ecological and topographic characteristics of agricultural land are all important factors in a farmer's decision about where to start farming. One farming couple discussed their difficulty in obtaining suitable land. After searching unsuccessfully for a small parcel of land to fit their needs, they settled for a much larger property. This has affected their choices of what crops to produce and also significantly increased their property taxes.

Farmers from two well-established and one newer CSA explained how they had run out of space on the land available to them and thus had already reached their maximum production. One farm had also lost a useable portion of its fields due to a rise in the water table. One CSA farmer told me she had already planted in all her available space, and another told of plans to clear and grow right up to her property line, which would mark the limit of her family's farming operation. For these CSA farmers, this limitation on growing space was not perceived as a problem, but rather a fact of their particular farm that they were willing to accept. A member of one of these farms told me, "We've gotten to the point where we have enough customers and earn a respectable middle-class income doing what we are doing, so there isn't that need to double production or quadruple production."

One of these CSA operators identified the balance of time and need for off-farm income as part of what determined their production capacity. This operator told me that the decision to expand from 15 to 20 shares, "actually depends upon [my husband], his working [off-farm], whether he'll be able to develop that last bit of ground or not." The production choices and limitations associated with individual farms clearly affect the amount of local food available for consumers to purchase. A livestock producer gave another example of how a farmer's lifestyle needs can affect food production. She told me that in the past, her family had considered investing in infrastructure to produce jerky from their livestock meat. She explained why they decided against this: "But again, that would take a building with a DEC-approved kitchen, and that would be quite an investment. At our age we just decided we weren't going to." In this case, the personal circumstances of these producers prevented the availability of an additional type of local food.

4.3.2.5 Choice of Market

A couple whose farm is located relatively far from town described frustration at harvesting and bringing produce to the Tanana Valley Farmers Market, not selling all of it and having to truck the produce back to their farm. One member of this farming couple

complained, "But another day you'll sit there ALL day because everybody brought turnips, you know what I mean? And so its so hit or miss, and such a terrible feeling to come home with vegetables." The other member of the couple added, "You know, you've already invested in growing it and harvesting it and all the work and… [the] extra 8 hours at the Farmers Market, you know you're not really getting paid for that time." The risk of wasting produce and labor was part of the reason this particular farm had begun a transition to selling more produce in a CSA model rather than at the Farmers Market. One member of this couple described the CSA option as, "More satisfying, less waste, it follows the growing season." Another farming couple also concluded that they could not market through Farmers Market due to their work schedules and lack of available time to sit and sell produce during the market days and times. One of them remarked, "It takes a whole person to be there twice a week. That's impossible [for us]." This couple also chose instead to market their farm products through a CSA operation. Expressing a different view, Robert, a producer with a lot of experience selling through Farmers Market thought that this model was less risky than attempting to market through means such as CSA or wholesale. According to him, Farmers Market is relatively accessible and "safe" for new and small farms.

Decisions of where to market foods change the nature of public access to a farm's products. While the CSA model might provide farms with greater income security by pre-selling the upcoming season's produce, it is also considered restrictive to consumers with a limited income because it normally requires payment of a large sum of money at the beginning of the season. Also, certain consumers might have to travel longer distances to get food through a CSA than from a farmers' market. In some cases CSA produce may be more accessible, but it depends on the method and location of share distribution and also on the location of particular consumers' residences and driving routines.

4.4 Consumer Convenience and Satisfaction with Local Food Markets

Producers and WIC affiliates both understood that convenience had a significant effect on consumers' decisions to purchase local foods, particularly from Farmers Market. They had mixed opinions, however, on the issue of consumer convenience and food consumption. In some cases the quest for convenient sources of food was depicted as a flaw that should be fixed, while at other times the desire for convenience was understood with a sense of compassion for the difficulty of managing time and family needs. With disapproval, one farmer said, "People want to go out of the bag and eat it or, you know, put it on the stove with water and call it food." However, many producers also expressed a sense of compassion and identification with the challenge of managing family activities and schedules. For instance, one CSA producer, Maggie, said, "And you want to support local, but now all of a sudden you can't get those other two things you need. And do you really have time to make two stops in a day? It's like, well I can't get toilet paper at the Farmers Market." Some producers acknowledged that, even among community members who were familiar with CSAs and farmers' markets, the issue of stress and lack of time prevents use of local food sources. Dimensions of convenience discussed included shopping, meal preparation, and personal stress of consumers.

4.4.1 Shopping and Market Experience

4.4.1.1 Comparative Convenience of other Markets

Some WIC employees viewed Farmers Market as inconvenient in terms of their clients' shopping and meal construction needs. Both WIC employees and area producers associated shopping at Farmers Market with consumers making an "extra trip." One WIC employee suggested, and others agreed, that lack of convenience stops people from using Farmers Market, saying, "Because really you're going out of your way to go to the Farmers Market to get the produce, when you can go to Wal-Mart, or Fred Meyer's, and Safeway and get everything that you need." The existence of "one-stop-shopping" markets in Fairbanks gives consumers the option to purchase food and many other household goods all in one place. The Tanana Valley Farmers Market is, thus, relatively

inconvenient for someone with several types of items on her or his shopping list. Producers in this study perceived the comparative convenience of other markets as an obstacle to consumers' use of local foods. Consumer expectations of convenience, inexpensiveness, and predictability were thought to inhibit the purchase of local foods.

4.4.1.2 Location

Among WIC employees, the location of the Tanana Valley Farmers Market was thought to be inconvenient for many area residents. WIC employees characterized Farmers Market as being distant from other centers of shopping and community activity:

Fran: It's kind of off the beaten path a little bit.
[overlap]
Cindy: Yeah, it's not a well-traveled –
Fran: I mean, really. It's not in the middle of town or anything.
Cindy: It's not like it's on Johansen [Expressway] where they're all shopping –
Fran: Mm hmm.
Cindy: – and doing everything else, either.
Danny: That's true.
Fran: They should put it by something like Wal-Mart or something.

Several WIC employees enthusiastically discussed the idea of local farmers selling vegetables from the WIC parking lot on days when WIC clients pick up their coupons. They saw this as a way of accommodating people's needs for convenience. Believing that WIC clients would appreciate this, these WIC employees said:

Fran: That's a great idea. That is a great [idea].
Danny: Oh my gosh. Those would get spent right away.
Cindy: They would go – it would go ballistic.

4.4.1.3 Hours of Operation

WIC employees explained that convenience of shopping trips was especially important to their clients. One described her perception that clients "want to go shopping the very day they get their checks. So that's their goal. Go to WIC. Get checks. Go shop." The Tanana Valley Farmers Market operation hours are not in sync with this.

Producers in this study largely agreed that the hours of operation of farmers' markets exclude many people whose work and life schedules do not align with these hours. Expressing an understanding of the need for convenience, one farm couple discussed consumers' difficulty using Farmers Market:

> **Robert:** Well the geographical distance is one and then the fact that it's not open every day of the week actually is I think an equal –
>
> **Nancy:** Convenience.
>
> **Robert:** Well a lot of people just aren't available on Saturdays, they have other commitments and they can't just make that part of their morning. You know, the rest of the schedule of the rest of the week just doesn't really allow for that because they either are working.... So, it would be both of those items really, the geographical distance and just the fact that there's only two days a week that they could do that. So a food co-op that had more of a storefront that could be open say five days would actually give those sorts of people a little more flexibility, and so that would be a good thing.

4.4.1.4 Market Environment

WIC employees also considered the shopping environment of the Tanana Valley Farmers Market problematic. One perceived problem was that the aisles are too narrow. As one WIC employee exclaimed, "You can hardly get a stroller through there." The busy parking lot was also said to be stressful and, for some, dangerous. A CSA producer shared this view, complaining of general congestion: "I mean, you drive by and it's just

swamped with cars, and you walk through the aisles and they're congested, and sometimes if you're walking around you see more crafts than food."

The busy atmosphere of farmers' markets was also seen as inconvenient for shopping with children because they could get lost in the crowds of other market visitors. WIC employee Danny says, "The thought of going to a farmers' market is overwhelming. It's like taking your kid to a carnival… they could just – 'thup' – go everywhere." Conversely, other WIC employees maintained that some WIC clients enjoy this atmosphere of entertainment. A few WIC employees suggested that Farmers Market might persuade more WIC clients to use it by adding family attractions such as an activity tent for kids, or childcare, such as the kind offered by some major grocery stores.

4.4.1.5 Trust and Communication

The issue of trust between consumer and farmer came up several times in the WIC employee focus group. This topic emerged in a discussion of ways that local producers market specifically to FMNP users. Some WIC employees noted that some farmers would group and bag certain items in five-dollar quantities. Each FMNP check is worth five dollars, and users of these checks have to use the full five-dollar amount or forfeit what they do not spend. WIC employees saw the practice of pre-selecting five-dollars' worth of produce as a negative and suspicious marketing method. They also criticized this practice as limiting a consumer's choice to select specific produce items, and thought that this could result in a substandard selection. One employee compared these bundles of produce to packaged items in mainstream grocery stores saying, "You go to Wal-Mart, you get the five-dollar bundle and half of it's rotten, so why wouldn't the farmers' people do that too?" Another agreed, "You assume it's the same thing." This lack of consumer choice also raised suspicions that these producers might be taking advantage of WIC users by packaging less than five-dollars' worth of produce. WIC employees depicted farmers who do not do bundling as more trustworthy and more likely to generate repeat customers.

WIC employees expressed having very little direct communication with farmers. One senior WIC employee said, "I don't think we've ever had any farmers actually come here." Several others agreed, one adding, "Never." The first employee then commented on my research activity with them: "You coming here, saying that you talked to farmers, that's the first there's ever been a bridge...." WIC employees thought that more communication with farmers would be beneficial and could increase use of Farmers' Market Nutrition Program coupons.

4.4.1.6 Seasonality and Limitations of Produce Selection

Shopping at the Tanana Valley Farmers Market was also considered as inconvenient because of the inconsistent and limited selection of produce throughout the season. A shopper cannot reliably expect to purchase, for example, tomatoes, zucchini, and broccoli every week at Farmers Market. Even if one is familiar with the seasonal nature of local produce, there is no guarantee that in-season products will be available on a given day, and items in high demand may be sold out early in the market day. Several employees discussed these limitations:

Fran: Down south you have so much more to pick from, down in Tennessee and Missouri. They start in March, April. You're able to get your stuff then.

Rachel: Mm hmm.

Danny: Yeah.

[overlap]

Fran: They have more access than –

Danny: Well I think there's a big disadvantage up here.

[overlap]

Fran: Yeah. We have less to choose from.

Gail: More variety.

Danny: Growing seasons.

Several producers mentioned the unpredictability of food selection at Farmers Market, which is affected by the growing season and times when certain products are scarce and sell out early in the market day. They suggested that people who were looking for particular produce might not take the risk of making an extra stop at Farmers Market only to find that the produce they wanted was not available. One CSA farmer and I shared this exchange during an interview:

Maggie: I think our market is definitely limited by its season… I think up here, it's like—Is there going to be lettuce yet?

Rachel: Is it that time of year?

Maggie: Right, right, like, 'have we moved beyond lettuce yet? Is there going to be a zucchini?' And then they go and it's not there yet, and so then they're like, 'Oh, I'll go to the store.' So I think we're definitely limited by our growing season in terms of the success of the market, because people don't know when to time that correctly because we're not bustling with vegetables all the time.

Rachel: So it's kind of hard to compete with a grocery store that consistently has –

Maggie: What you need, you're not wasting a trip. I don't know… it just would be really neat if Fairbanks could somehow make that shift where more people were doing a market shopping and you could get things like meats and fish.

WIC employees agreed, citing insufficient variety of foods as a problem in local food use. Produce available at Farmers Market, largely consisting of vegetables, was not seen as providing everything needed for a meal. One WIC employee asserted, "It's just convenience too. Because when you get the raw fruits and vegetables, that takes preparation. And then you have to think of, 'Okay… this is just a side dish.' They want the meal. They don't want to put time into a side dish."

In some cases, the missing part of the meal may be meat. WIC and Senior FMNP recipients in this study consistently talked about meat in their descriptions of desired foods and meal preparation. Even when I tried to direct the discussion toward fruits and

vegetables, meat was often included in responses. After I asked about participants' use of fruits and vegetables in cooking, Becky, an Alaska Native WIC recipient, offered, "Well, we use it in our soups, like the cabbage we use in soups, and salads and salmon, too. We eat a lot of salmon, a lot of salads in the summertime."

4.4.2 Meal Preparation

WIC employees told me that convenience in meal preparation is a key value for WIC clients. They explained that some mothers reported purchasing fast food or frozen meals to cut down on the stress and labor in their lives. Among WIC employees in this study, the idea of using fresh foods was sometimes associated with longer and more laborious meal preparation.

Ashley: You know I work all day and then I don't wanna go home and spend two hours making a meal.

Hillary: Absolutely.

Ashley: Mmm.

[overlap]

Hillary: When you can grab a pizza for ten bucks.

Ashley: Mmm. Totally.

Some local farmers process foods in ways that reduce consumers' food preparation time. One farming couple was troubled, however, by the use of bagged salad mixes and spinach to suit consumer convenience:

Eugene: We did an experiment when we were selling spinach.... I packaged up ten eight-ounce bunches of spinach and ten eight-ounce bags of spinach and put them side by side for the same price on the table, and we sold out of the bagged spinach to selling one bunch.

Rachel: Wow.

Eugene: And I, you know in my mind, I'm thinking –

Maggie: Thinking plastic –

Eugene: Plastic sucks. Why in the world would you go to all of the trouble to grow organic produce and then put it into a product made of petroleum? And you know here we all are, and plastic sells. You know, I've heard people literally say that, even at an organic grower conference, plastic sells produce. And people want the convenience of being able to open a package and have something that's already been cleaned because they don't want to clean.

A CSA producer, Terry, shared her understanding that time was a major barrier in public use of local food sources because of the "time it takes preparing the food. Not everyone is going to actually take the time to cook it. Most people, or a lot of people, they want a convenient meal." Accounting for this consumer desire, she suggested these community members could use other options besides fresh produce to consume local foods, saying, "So, then supporting restaurants that buy local food is one way, too."

Simple recipes were thought to be a good way to encourage WIC clients to do at-home meal preparation. One WIC employee noted, "A lot of recipes are encouraging people to be, 'Oh, look how culinary you can be. Look how you can be a homemaker.' Whereas, people are like, 'No. I want things that are easy to understand, easy to prepare, that are like five steps or less.'" While raw and fresh food products, such as those found at farmers' markets, can be used in recipes both simple and complex, this discussion lends weight to the idea that convenience is highly valued by low-income consumers, such as WIC clients.

4.4.3 Life Stress and Time

WIC employees spoke of many of the aforementioned considerations of shopping and food consumption in conjunction with the fact that WIC clients were often navigating stressful life circumstances. One WIC employee explained, "The young military moms, they're really overwhelmed right now. They're dealing with being single

parents. They're dealing with their husbands just deploying a month ago." This helps explain why issues of convenience are so important to many WIC recipients. Convenient foods may be a key way of managing stress and time limitations. Convenient shopping experiences are also important. A WIC employee described her own experiences with stress and shopping:

> **Hillary:** I'll tell you, too, as a mom with little kids, it's really stressful for me to go grocery shopping…. It's frazzling. And you have more than one [child] and they're ganging up on you. And you've got one going in one direction, and one in another direction. And you're just trying to get out of there, you're trying to make them happy, so you're buying what they want, not what's healthy for them.
>
> **Gail:** And [they're] screaming.
>
> **Hillary:** And you go home with all this processed food.

It appears that the busy and stressful lives of parents (possibly single) with young children can play a large role in determining which kinds of food they consume.

4.5 Cost

Cost can be an important factor in food choice, and it was one issue on which views of participants in this study diverged. Participants disagreed about whether local foods are more expensive than imported foods. Recent research has indicated that Fairbanks-grown vegetables are more expensive than their imported equivalents (Meadow 2012). In a preliminary measure of local food affordability, Meadow (2012) compared prices of a selection of local and non-local vegetables in Fairbanks. The average price of nonlocal food was $.1044 per ounce and the average price of Fairbanks-grown produce was $.1818 per ounce (Meadow 2012:229). Still, perceptions and concern over food cost may present a barrier to use of certain foods regardless of whether the food is actually more expensive (Turrell and Kavanagh 2006). Perceptions

of local food cost and expensiveness relative to other sources varied among participants and are related to multiple concerns of producers and consumers.

4.5.1 Producer Perspectives on Cost of Local Foods

Farmers largely agreed it was unlikely that locally grown food would ever be price-competitive with food produced on an industrial scale, due to the small-scale nature of local food production in Interior Alaska. They explained local farms being at a disadvantage in terms of the scale, climate, and available labor force compared to what one farmer called, "huge mega farms from the Lower Forty-eight." Nevertheless, some CSA producers felt especially confident that their produce was priced competitively with produce from large grocery stores in the area. Of his CSA shares, one producer declared, "I can look someone straight in the eye and say, 'This is a good deal.'" Another asserted that the higher quality of her local produce made it price-competitive with imported produce: "I go into the grocery store all the time and compare my prices with what's coming up from the Lower Forty-eight… and the quality is half the quality, I mean, they're going to throw [away] half of what they buy at Fred's [supermarket] for the same price."

A few producers suggested that higher prices for certain local foods were a result of the small-scale, sustainable, or ethical practices they chose. Producers believed that if consumers knew about these practices, they would be more likely to value these products and willing to pay the price for the additional costs these methods incur. Meghan explained that without this understanding, average consumers sometimes "balk at some of the pricing that we have to do." She continued, "They don't really equate the quality as much, but that it's more expensive than what [they] would have paid for it at Freddy's. But that's, you know, chemically fertilized, not organic necessarily, produce." She added, "Those consumers who do come and use the market regularly… are incredibly supportive and are willing to pay the price, most of the time." Despite this, some producers had decided against using some organic farming methods because they

did not think they could recover their production costs at the prices customers would accept.

One producer made clear that lowering his produce prices was out of the question. He said, "I have no inclination to… sell anything I'm producing cheaper. I have full faith that people will buy it and I would rather not produce it than produce it cheaper than that. I could do other things for the money." Other producers expressed a similar sense of firmness in their prices.

Some producers perceived lack of willingness to pay higher prices for local foods as due to the average consumer budget being skewed and manipulated toward an expectation of unreasonably low food prices and a high allocation for non-food items. One producer explained:

> We as a nation have subsidized our food through government subsidy programs, so that our food, what they buy in the grocery store and get from the Lower Forty-eight is very cheap, relatively…. So when we try to sell our products I think that's the one thing, is that people want cheaper food.

One farmer expressed the opinion that modern society encourages consumption of many non-food items:

> We live in a society where there's a million people marketing to everybody's pocketbook. And we live in a – Everybody wants their flat screen TV and their iPhone and their new fancy car and their this and this 'n this and THIS. And people are on a budget and they're trying to keep up with the Jones' around them and they want the same thing that everybody else has in society…. But there's nobody out there saying this is why you need to spend good money on healthy food from your local community.

4.5.2 Consumer Perspectives on Cost of Local Foods

Both WIC employees and FMNP recipients viewed Farmers Market as expensive. Some employees joked that the 25 dollars' worth of coupons given per summer would only buy "two tomatoes," "two zucchini," or a "watermelon." WIC employees agreed that most WIC recipients who shop at Farmers Market would not purchase more food than what they could get through their FMNP coupons. In response to a question I asked about whether some clients do purchase beyond the amount of their coupons, WIC employees discussed:

> **Fran:** Well our clientele may not have the extra money to buy it.
>
> **Cindy:** Or if they do...
>
> **Ella:** Maybe twenty percent?
>
> **[overlap]**
>
> **Cindy:** Or if they do it's just enough to cover the difference.
>
> **Hillary:** It's the price. The price is high.
>
> **Cindy:** But no, I think typically... not.

WIC employees and FMNP recipients in this study tended to perceive consumption of local food as limited by cost. Some of them were struck by the high prices at the Tanana Valley Farmers Market in comparison with farmers' markets in the Lower Forty-eight States. One WIC employee new to Fairbanks said:

> I was shocked just how much it costs. And so, I mean, I'm from Tennessee down south. You go with twenty bucks and you can't carry it to your car. And so we get up here and I'm like, 'Awesome, the WIC vouchers have farmers' market!' And we go and we're like, 'Oh, my God.'… So maybe some people don't think that's worth the trip, especially if they know the prices.

Senior FMNP coupon recipient, Mary, agreed saying, "I've been there and it's expensive. It's really expensive."

WIC employees described how food prices could outweigh other considerations such as quality and healthiness. One employee described food choice decisions this way: "You get to the Farmers Market and you're like, 'Well, the quality's good.' And then people are like, 'Yeah, but I don't want to pay that much.' Like, 'I don't care about quality. I care about the price.'" Most WIC employees also viewed higher cost as an obstacle to consumption of healthy foods in general. One said, "You know, I would rather have healthy foods and things, but it does add up. It's like, lean cuts of meat, you know, whole grains." WIC employees also discussed cost in relation to other food values such as convenience. Some employees pointed out that unhealthy foods can be both less expensive and more convenient, one relating, "A lot of times you can buy, for the same price, a couple of pizzas versus cooking a healthy meal."

Some WIC employees considered the decision to seek lower-cost items a necessary part of making sure family members were well-fed. One employee believed this goal entailed forgoing fresh and healthy foods because they are more expensive:

> Fresh is always going to be higher. Healthier is always going to be more. So, that's where your value system comes in. Do you value those healthier foods over the less healthier foods? Or like Hillary says, do you value the price? And, honestly as a mother of six kids, I value the price. That's how you make the food stretch.

4.5.3 Non-monetary Values of Local Foods

Producers, WIC employees and FMNP coupon recipients also related a range of motivations for producing and consuming local food beyond cost savings. Some producers saw it as a way to promote sustainability or environmental values. Others thought local food production could strengthen food security, self-sufficiency, or disaster preparedness. One producer, Terry, described her choice to encourage people to eat more local foods saying, "Food security I guess is the way I think of it because, like I said, if

anything happens with global moving of food, we wouldn't last very long here. So, it would be good to educate people about the whole idea of being more sustainable." WIC employees promoted the use of Farmers' Market Nutrition Program coupons as a way for their clients, especially children, to consume more fresh produce. WIC recipients highlighted the enjoyment and improved sense of self they gained from growing, procuring, cooking, and eating local foods. When asked what they liked about gardening, two participants spoke this way:

Mary: Fresh air and just being there.
Becky: Just for having that time to make your own foods.
Mary: Relaxing. Solitude.
Becky: And it gives you confidence.

Several producers spoke of their wishes to contribute to the health and wellbeing of their communities by providing local foods. A CSA producer told me that she felt less connected to the Local Food Movement than to the idea that she was feeding her community: "I don't think I feel like we're a movement. I think we're a community.... I see it as community-building." Some producers considered reconnecting with the land through growing or consuming local foods to be healing. One female Alaska Native producer spoke of wild foods as having healing capacities and told me of her familiarity with these foods being fed to ailing or hospitalized Alaska Native people as a part of a path toward wellness.

Several producers spoke of encouraging local food production in Alaska Native villages as a means of overcoming challenges with imported food prices, health problems, and social ills. Most producers also believed that farming or gardening was not a common or traditional practice among Alaska Native peoples. Of Alaska Natives, CSA farmer Terry said, "I think the farming is less part of their community, but it certainly could be more with education." Loring and Gerlach (2010) refute the depiction of Alaska Native history as being devoid of agricultural food production.

The fact that local foods are valued in so many different ways complicates the understanding of local food use. These values associated with local food are difficult to quantify, but each group that participated in this study expressed some way they saw value in local foods or local food production beyond monetary or cost efficiency benefits.

4.6 Conclusion

Public use of local foods in the Fairbanks-Delta region of the Tanana Valley is influenced by multiple factors in the lives of both producers and consumers. Meeting the needs of these actors in the local food system may require collaborative efforts. Taking, as an example, the issue of convenience of food products and markets, it is clear that the interests of producers and consumers are intertwined. In some cases, producers marketing their products in a convenient way for consumers contributes to higher product sales, as in the example of bagged spinach. In other respects, producers do not currently have the capacity to accommodate consumer desires for convenience, for instance in the predictability of food products offered. The seasonality of agricultural products prevents the present local food system in this area from matching the same kinds of convenience offered in major grocery stores. For consumers to eat seasonally, however, may be inconvenient for meal planning and efficiency of shopping trips. Although the relationships between desires of producers and consumers may be complex, understanding and addressing the needs of both is integral to expanding use and improving access in the local food system.

5 Discussion

5.1 Introduction

Decisions made by people influence public use of local foods. People in local food systems bring a diversity of needs, perceptions, values, and life circumstances to bear on their decisions and actions concerning local foods. A key contribution of this study is in how it shows that public use of local food involves interconnection between the interests and choices of both consumers and producers, and that the influences on decisions about both production and consumption of local foods are more complex than many researchers have assumed. With this diversity, interconnection, and complexity in mind, it is clear that inclusive and broadminded approaches are needed to understand and potentially influence local foods use. Incorporation of multiple perspectives and fine-grained detail of daily experiences will result in a complex but more accurate and useful understanding of public use of local foods.

5.2 Implications and Recommendations

5.2.1 Return to the Main Research Question

This study has led me to reevaluate my research question. In planning this case study in the Tanana Valley, I originally sought to gain information about what factors influence the use of local food by people in a particular region. What I discovered is that, while participants identified various "factors" such as cost, convenience, time, and knowledge, these issues only take practical effect within the context individual people's lives. Both producers and consumers have needs and perspectives that influence their choices. These choices have effects on the nature and extent of public use of local foods. Thus, perhaps a more useful questions is: How do people make choices about using or producing local foods as they attempt to meet their needs within the context of their lives and communities?

5.2.2 Lessons from this Study

By exploring the needs and views of both agricultural producers and low-income community members, this study has revealed some of the ways in which social dynamics and daily life and livelihood concerns influence people's choices and yield outcomes in use of local food resources. As described by participants in this study, these choices are connected with people attempting to make decisions that meet their needs and align with their priorities and values. Participants talked about their lives, stresses, and decisions, illustrating ways that family and social relationships, work and life schedules, and a variety of other issues are connected with how they make choices about local foods. The discussions in this study also included ways that awareness of mainstream grocery store options for food impact public use of local foods, suggesting that understanding how the local food system works requires acknowledgement of imported sources of food. Thus, allowing participants to describe details of their daily experiences encourages a broad and complex, but ultimately more accurate, depiction of how people use the local food system in the Tanana Valley.

5.2.3 Producer and Consumer Needs and Decisions: Interconnected, Daily, and Complex

Local foods access and use are complex issues tied to daily life and livelihood experiences and decisions of both producers and consumers. Participants in this study shared their perspectives on how people use local foods in the Fairbanks-Delta area of the Tanana Valley. In interview and focus group discussions, they described daily experiences and perceptions of local food activity that shed light on the complex and diverse nature of decisions about local foods.

5.2.3.1 Daily Concerns and Stress

Interview participants in this study provided many examples of how daily constraints on time and human energy, as well as longer-term decisions about business income, lifestyle preferences, or livelihood security, can affect the production, distribution, and consumption of local foods. For low-income community members,

especially as described by Special Supplemental Nutrition Program for Women, Infants and Children (WIC) employees, time available for shopping and cooking in a person's schedule figures largely in the types of foods and food sources that person chooses. This aligns with the results of a study of meal preparation among low-income mothers, in which perceptions of "time scarcity" were associated with various strategies for feeding themselves and their families (Jabs et al. 2007). For producers, their available time and energy to produce, process, or market foods were recurring themes related to decisions in producers' farming operations. As explained in Chapter 4, these decisions have effects on the quantity of foods produced and the ways in which the producers market and distribute these foods. Thus, the daily stress of both producers and consumers influence decisions concerning local foods.

5.2.3.2 Consumer Needs and Decisions

In this study, producers, WIC employees, and WIC and Senior Farmers' Market Nutrition Program (FMNP) coupon recipients all discussed ways that cost and distance limit local food use. This aligns with the findings, interpretations, and assumptions from other local food studies that suggest these issues are a key part of the patterns of local food use and access (Allen 1999; Guthman et al. 2006; Johnston and Baker 2005; Larsen and Gilliland 2009; Meadow 2012). However, although cost and location appear to be important issues in determining consumer use of local food, these factors are part of decisions which involve many other factors and relationships.

In the WIC focus groups, some participants characterized products at the Tanana Valley Farmers Market as expensive. Also, some producers and WIC employees shared the assumption that fresh and healthy foods will always be more expensive. These perceptions may have an effect on the purchase of local foods regardless of what the current price actually is. Turrell and Kavanagh (2006:381) found that perceptions of cost in terms of the level of "food-cost concern" can affect whether a person purchases healthy foods, and suggest "a possible discordance between people's subjective perceptions of the cost of healthy food and objectively measured reality." Additionally,

the fact that WIC and Senior FMNP coupons are underused, according to WIC employees, suggests that this particular program for reducing the cost of local foods may not provide enough incentive to use more local produce for many people in the program. This is interesting in light of the fact that some producers perceived the WIC program to be effective in engaging new parts of the community in local food consumption. These producers thought WIC was successful in overcoming the cost barrier to local food. However, WIC employees saw the low usage of available coupons as an indication that the program needed improvement and was not achieving its goals. This illustrates one example of how the choice to use local foods is not simply determined by cost.

Convenience of market place and food products is also an important and complex influence on local food use and access. WIC employees identified convenient shopping as a high priority. Producers and WIC employees shared some of the same concerns over marketplace convenience, particularly in terms of the limited hours of the Farmers Market. Both producers and WIC employees also mentioned traffic congestion and crowded market aisles as discouraging to potential shoppers. According to WIC employees, straightforward recipes and easy-to-prepare meals are very important to many of their clients. The fact that Farmers Market may not carry all of the ingredients desired for a meal, especially meats for some shoppers, might impact how much the market is used. This may also give Farmers Market an image of being a source of specialty food items rather than a place to obtain foods for daily sustenance. In the Fairbanks area, the convenience of the Farmers Market was compared to the convenience of large, franchise, one-stop-shop kinds of supermarkets. Since these stores offer most products a consumer might want, a trip to the Farmers Market will likely be viewed as a special or extra stop. Thus, even if a community member found foods at the Farmers Market comparably affordable, he or she might skip the market to avoid the extra errand or gas expenditure.

5.2.3.3 Producer Needs and Decisions

Producers also affect public use of local foods as they make decisions to meet their needs. Questions about their impressions of how consumers use and know about local foods opened an opportunity for them to talk about their own connection and role in influencing public use of these foods. They made connections between the challenges they face as producers and the availability and accessibility of local foods.

Small farmers undergo many challenges as they make decisions to meet the needs of their business and family life. Factors such as farm labor, land taxes and prices, farm income, farm efficiency, ecological concerns and constraints, and marketing are just some of the things that influence a producer's decisions in terms of what and how much to grow or produce. Because these decisions affect the availability and variety of local foods, they have an immense effect on what and how much local food is available to consumers.

Security of farming livelihoods and income was a key concern discussed by producers. Interview conversations revealed that these farmers experience stress and worry about their businesses as they make decisions about producing, pricing and marketing local foods. When considering consumers' needs for affordable and accessible foods, producers sometimes reacted with compassion, understanding, and a willingness to accommodate these needs. At other moments, these consumer needs evoked resistance, disapproval, or resentment about notions that producers should be additionally burdened with the responsibility of pricing their foods competitively with imported foods or making foods more convenient by changing their processing or distributing methods.

Finally, this study showed complexity in the local food system by illustrating that the labels "consumer" and "producer" do not apply neatly to people's lives. Farmers, WIC employees, and WIC and Senior FMNP recipients each mentioned signs that community members were producing or wanted to produce their own food. Gardening, purchasing at the Farmers Market, using WIC coupons, buying from small grocery stores or cooperative markets, raising farm animals, hunting game, fishing, and gathering wild berries and mushrooms are some of the activities in which community members can

engage that allow them to benefit from food produced in the local ecosystems. There are, thus, multiple ways that community members can gain access to local foods, some of which blur the distinction between producer and consumer.

5.2.3.4 Benefits of Considering Multiple Perspectives

The value of bringing together multiple perspectives in natural resource issues extends across realms of knowledge and action. There are several strong reasons for including multiple perspectives in the discussion of local food use and access. Listening to the needs and perceptions of both producers and consumers can help generate greater understanding of how local food systems work, address issues of justice and equity, and aid policy makers and local food system advocates in applying this knowledge to policy and program development.

Human participants are a part of local food systems, and showing respect for their diverse perspectives and choices can generate greater understanding of how these systems work. Viewing local food production and consumption as part of a system opens the opportunity to incorporate divergent views and complex relationships between elements that influence use of local foods. Systems thinking encourages the recognition and study of the complex interconnections between people, ecosystems, information and many other elements that interact to create particular behaviors or outcomes within systems (Meadows 2008). The ecological and social effects of local food systems are not yet well-understood, though there are many assertions and arguments surrounding the value of local and alternative food systems in comparison with global distribution of foods produced on mass scales (Grey 2000). Some suggest that local food systems are viewed with undue optimism, and do not necessarily bring reduction of greenhouse gas emissions (Weber and Matthews 2008), less dependence on fossil fuels (Mariola 2008), sustainable food production, economic development (Renting et al. 2003), resolution of social justice issues (DuPuis and Goodman 2005; Hinrichs 2003), or any other particular outcome (Born and Purcell 2006). Others theorize that local food systems invite greater exchange of information between producers and consumers about food production and

distribution practices, and that this leads to better ecosystem stewardship and strengthening of social relations within communities (Hendrickson and Heffernan 2002; Kloppenburg et al. 1996; Lyson 2005; Sundkvist et al. 2005). By examining the opinions, stories and perceptions of human actors in local food systems, we can learn more about the social and ecological interactions that help determine the outcomes of food system localization.

There is a need for careful, inclusive and reflexive approaches to local food system politics and development for the purpose of attaining social justice and equity in the production, distribution, and consumption of local foods (Allen 2010; DeLind 2011; DuPuis and Goodman 2005; Guthman 2008; Hinrichs 2003; Hinrichs and Kremer 2002; Slocum 2007; Trauger 2007). Citing elitist and exclusionary tendencies of local food projects and discourse, DuPuis and Goodman (2005:362) draw parallels to other "middle class reform movements" that have used an unreflective and normative, class-based conception of what is "good" and "right" to covertly encourage social norms more pleasing to white, middle-class tastes and sensibilities. They say, "We seek to free food reform from its control by consumers of a particular class and ethnicity who have historically set the agenda for 'saving' the food system" (DuPuis and Goodman:365).

Although scholars have cautioned that current local food system manifestations in the United States, such as farmers' markets, Community Supported Agriculture (CSA), and popular media, have shown signs of socially elite, exclusive, or unequal participation and control, some also suggest that such exclusivity could be reduced by giving greater attention and consideration to the needs, experiences, and differences of those regularly and historically excluded from local food discourses and activity (see Allen 2010, DeLind 2011, DuPuis and Goodman 2005). There may, however, be resistance to encouraging flexible and diverse understandings of local food due to the desires of local food system advocates to set definitions and boundaries which help to differentiate local from "outside" food (Hinrichs 2003). In light of difficulties in incorporating diverse perspectives, it becomes clear that, as Allen (2010:304) proposes, "For those working on local food projects, special efforts need to be made to include

those who have been materially or discursively marginalized." One path to greater understanding and inclusion lies in listening to the fine-grained detail of daily stresses and experiences of a diversity of individuals within local food systems.

Policies and programs that seek to increase use and expand access to local foods can also benefit from an understanding of local food use that includes multiple perspectives and acknowledges complexity. Because needs and values differ among individuals with different life circumstances and goals, there are serious pitfalls and limitations to simple or exclusive ways of studying and portraying local food systems. Attempts to predict behavior, define barriers to access, or apply solutions to perceived problems based on perspectives of a single group, or a narrow view of decision-making, are not likely to be effective.

In some ways, the tendency for local food programs or organizations to highlight outreach to "low-income" or "limited-income" people obscures the possible existence of non-monetary reasons that consumers do not buy local foods. While producers praise the acceptance of WIC benefits at farmers' markets as a way to improve access to local foods, lowering cost is only one way to ease access. Further, as mentioned by WIC employees, funding for this program is not secure, nor is it currently used to its capacity. This may reflect that there are other influences on access that have yet to be addressed.

Privileging certain needs and values can inhibit respectful human interaction. Some producers in this study depicted typical American eating patterns, involving cheap and convenient food, as a "cultural problem" that stands in the way of greater use of local foods. However, if those who do not currently participate in purchasing local foods are seen as having less knowledge, will power, or properly set priorities, this could also stymie attempts to expand and diversify public use of local foods. Consumers who are approached with messages that their food preferences are in need of reform may feel unaccepted or disliked.

Producers also expressed feelings of being misunderstood by members of the public. Several producers in this study stated a desire for the public to better understand the stresses and constraints that producers face in producing and marketing foods locally.

WIC employees talked about a lack of trust in the ways that producers price their products. Respect for producers' needs for livelihood security is also critical to expanding local food access, because producers make choices about what to produce, how much, and where to market their foods based on these needs. This is important knowledge for purposes of developing policies and programs, such as the WIC and Senior Farmers' Market Nutrition Program, intended to increase and diversify local food use. To push aside questions of divergent values among food system actors is to push aside understanding and the possibilities for effective policy and program development that might emerge from this understanding.

The issues of consumer convenience and producer needs for efficient time use provide an example of the practical benefits of addressing needs of both producers and consumers. Meeting consumers' needs for convenience could allow production to grow while also improving access to local foods. Community members looking to purchase local foods, whether low-income or not, share many of the same lifestyle constraints, such as limited hours for shopping, challenges of shopping with children, and the desire to keep errands to a minimum by being able to purchase a variety of household items and meal components at a single source. Producers or professionals in food industries might consider whether there are overlooked or novel and creative ways of marketing to consumer convenience. In terms of WIC recipients, a more convenient marketplace would also increase access for lower-income community members.

In the local food community there seem to be many hurdles, both practical and conceptual, to seeing accommodation of consumer convenience as a win-win situation for producers and consumers. There can be resistance among producers to considering ways of making local foods more accessible because of assumptions that this problem boils down to the cost of local food being unaffordable to low-income consumers, thus implying that solutions require a reduction in farmer incomes (see Guthman et al. 2006). However, as shown in the discussion with WIC employees, cost is one consideration among many, and there may be multiple avenues to pursue that would not necessarily result in economic hardship for producers.

Changes to make marketplaces more convenient for consumers have, in fact, a great potential to benefit producers by making it easier and more efficient to sell their products. As an example, if the Tanana Valley Farmers Market were to change the layout of its booths and parking spaces in such a way as to cut down on consumer congestion, consumers could benefit by having an easier shopping experience, and producers could benefit by selling their products more quickly, allowing them to use the saved time in other areas of their businesses or lives. If local food professionals accommodate consumer desires for convenience, rather than eschew them, this could also result in greater public receptivity to local and fresh food campaigns.

5.2.3.5 Tensions and Potentials

In examining interview data from this study, it appears that the needs and values of producers and consumers are sometimes at cross-purposes with each other. Knowing this, we might ask, how do these needs and desires interact as they are expressed through action in the local food system? Will the needs of one group be privileged? Whose needs will be met? Will a particular set of values, beliefs, and needs be taken as the norm to the exclusion of divergent perspectives? Who will decide and who has the power to do so?

There are certainly tensions and disagreements between the perspectives of producers and consumers in this study. Cost of local food and convenience of food and markets are two areas in which needs of producers and consumers do not appear to easily align. Small-scale, local producers may not be able to ensure a stable livelihood for themselves, while also attempting to price their foods competitively with those from imported food markets. For some consumers, the farmers' need for livelihood stability may conflict with their needs, values or priorities for purchasing low-cost foods. In some cases, producers in this study acknowledged consumers' desires for convenient foods and viewed these desires as problematic and in conflict with the types of foods they sell. WIC employees described how using fresh, raw foods can be seen as inconvenient, in comparison to more processed foods, because of the time and effort involved in preparation and cooking. These tensions between needs of different people within the

local food system may be unavoidable, but reactions to these circumstances are not forgone conclusions. If the needs of both producers and consumers are respected and understood, solutions that invite inclusion of diversity and broader use of local foods might emerge.

5.3 Limitations

This is an exploratory study and not representative of particular groups in the community. It is important to remember that this study was designed to explore the topic of public use of local foods and not to assess it statistically. The value of this research is in the generation of a collection of ideas, perceptions, patterns, and interrelationships around the issue of local food use of in the Fairbanks-Delta region of the Tanana Valley. Findings and interpretations presented in this thesis are, thus, limited to the views and understandings shared by the particular individuals who participated in this study. Although the data cannot be considered representative of the various populations involved, the expressions of the participants may stimulate further inquiry that is informed by in-depth perspectives of people who regularly interact with facets of the local food system in this region.

More data from WIC recipients would have benefited this study. If I had had more time, I would have spent longer with WIC recipients. Employees at the WIC office told me that it was very difficult to gain their attention during WIC counseling sessions. I did not realize how difficult it would be to recruit them to participate in focus groups. I had not had as much opportunity or taken as much time to develop relationships with WIC recipients as I had with agricultural producers. Doing so might have helped increase WIC recipient participation in my focus groups.

5.4 Future Research

Based on my findings from this study, several avenues of further research appear appropriate. The following research suggestions are focused on continuing to build upon this case study in the Fairbanks-Delta region of the Tanana Valley.

5.4.1 Further Exploration of Factors of Local Food use in the Fairbanks-Delta Region

It would be beneficial to gather more data that can sheds light on how and why community members use, or do not use, local foods. Further research with community members could be designed to gain the perspectives of a diverse array of people, representative of various social groups in the Fairbanks-Delta area communities. This could broaden and add insight to our understanding of how non-producer community members experience and use the local food system. Future studies could build off of data from this study by formulating interview questions to investigate more specific aspects of local food dynamics.

Another avenue worth pursuing would be to ask non-producer community members to describe their ideal food system. In this study I interviewed producers about their concept of an ideal food system for the Tanana Valley. This created an opportunity for producers to envision a desired future. In future studies, engaging non-producers in this kind of visioning process could complement this.

5.4.2 Mixed Focus Groups

Conducting mixed focus groups with producers, consumers, and public health professionals could also prove helpful. Discussions among these groups could reveal new relationships between the concerns and needs of members of these groups. This could further contribute to an understanding of how local food use is connected to multiple factors, decisions, and actions in the daily lives of individuals within these groups. This would also be an opportunity to improve cross-sector communication and support problem-solving. In a mixed focus group, creative solutions to problems of nutrition, farming livelihoods, and access to local and healthy foods might emerge.

5.4.3 Representative Measurements of Community use of Local Foods

Findings from this study could aid in the construction and conducting of a large-scale community survey with a sample size and selection representative of the diversity in the Fairbanks-Delta communities. A survey such as this could be used to gauge how

much of the population is using local foods, the demographics of people using local foods, and the sources from which they obtain those foods. This type of survey could be used as a baseline measure to assess whether future changes or interventions in the local food system have an effect on the population of local food users or the sources of local foods used. An example of an expected change in the local food system is the opening of the Fairbanks Community Cooperative Market. This cooperative expects to open in the near future and to make a priority of stocking locally produced and affordable foods. The fact that this market is designed to support local food use and that it will be located in Downtown Fairbanks, an area with limited sources of fresh produce, creates a great opportunity to learn how this kind of market can affect public use of local foods.

5.5 Conclusion

Today, accessing local foods is about more than food. It is about access to power, and the ability to play a role in rethinking and redesigning our food system. In many ways this access is unequally distributed. The development of local food systems may be part of a larger attempt to recreate and reimagine the ways that humans interact with the environment for the purpose of improving human and environmental well-being. In this light, those who use and engage with the activities of their local food systems can also engage in this creative process. Thus, access to local foods may, in fact, be access to the power to change the food system. If these changes are going to suit and be useful to a wide array of people, a wide array of people must be involved. This will require respect of the diverse needs, perspectives and choices of people in the local food system.

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Appendix A

Producer Interview Questions

Part I: Your Farm

How long have you been operating this farm?

What first got you started farming?

How has your business grown/ changed over time?

What are some things you like about producing local foods?

What are some things you find challenging in operating your farm?

Part II: Your Relationship with the Public

How do you sell your products?

How have your strategies changed over time?

How do people who want to buy your products find out about your farm?

If you advertise, who is your target audience?

Can you describe any successes? Any problems?

If you had extra money for marketing, how would you spend it?

In what other ways do you reach out to or interact with consumers?

Can you describe some typical interactions?

Do you feel you have any problems or wishes for improvement in this relationship?

Are there some groups of people in the community that are not currently or not likely to be your customers? If so, what are those groups?

Are there groups you would like to reach out to that you've had difficulty reaching?

Besides buying your produce, what other ways do non-farmer/distributor members of the public support your farming operation?

Part III: Your Views on Local Food and the Public

What are the most important issues to you in the relationship between farmers and the public?

From your perspective, how much of the community is aware of the opportunities to purchase local foods?

What do you think stops more people from being involved with (buying) local foods?

What would you think if more of the community ate local food?

What would you think if the whole community ate local food?

If you could create the ideal food system for people in the Tanana Valley, what would it look like?

What do you think of the phrase “local food movement?”

Appendix B

Producer Focus Group Questions

(The following are examples of the kinds of questions I expect to ask. The questions will be refined and informed by responses in the producer interviews in Stage 1 of the project.)

Part I: Exploration of current state of the relationship between farmers and the community, and public access to local food and involvement in the local food system

What does the idea of eating locally mean to you?

What are some of the ways that people can participate in a local food system?

In what ways does the local public support farmers and farming in the Tanana Valley today?

Are you happy with the level of community support and participation in the local food system?

What are some of the challenges present in the current relationship between farmers and other community members?

In what ways could this relationship be improved?

How much of the community is aware of their opportunities to purchase local foods?

What prevents greater public participation?

What do you think stops more people from being involved?

Part II: Ways to overcome challenges/ Vision for the future

If you could describe the ideal food system for Fairbanks, what would it look like?

What are some of the obstacles to realizing that vision?

What are some ways to overcome those obstacles?

Appendix C

Social Service Provider Focus Group Questions

From your perspective, how many of your clients use Farmers Market (coupons, cash etc.)?

How many of your clients talk about gardening?

If they do, what do they tell you?

How many talk about buying food from regional sources?

What do they say about this?

From what you know about clients' lives and various constraints, how well do you think using local foods fits into their lives?

How come?

From your perspective, what is the level of interest in buying, learning about or growing foods in the local area among your clients?

What do you think are some of the reasons for this level of interest?

How might farmers, organizations or schools improve their capacity to engage people like your clients?

Appendix D

Community Member Focus Group Questions

(The following are examples of the kinds of questions and topics I expect to include in the focus group. The questions will be refined and informed by responses in the producer interviews and focus group in Stage 1 and 2 of the project.)

Do you eat local foods?

Please describe your experience with local foods.

Where do you get them?

How do you prepare and eat them?

How did you learn about getting, preparing and eating these foods?

What is your experience with farmers' markets?

Do you buy food from farmers' markets here? Why? Why not?

How easy or difficult is it to make local foods part of your diet?

Why is this the case?

Appendix E

Human Subject Research Approval

UNIVERSITY OF ALASKA FAIRBANKS

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February 15, 2011

To:	Cary de Wit Principal Investigator
From:	University of Alaska Fairbanks IRB
Re:	[216475-1] Growing local: food, knowledge and research capacity in Interior Alaska

Thank you for submitting the New Project referenced below. The submission was handled by Exempt Review. The Office of Research Integrity has determined that the proposed research qualifies for exemption from the requirements of 45 CFR 46. This exemption does not waive the researchers' responsibility to adhere to basic ethical principles for the responsible conduct of research and discipline specific professional standards.

Title:	Growing local: food, knowledge and research capacity in Interior Alaska
Received:	February 15, 2011
Exemption Category:	2
Effective Date:	February 15, 2011

This action is included on the February 24, 2011 IRB Agenda.

Prior to making substantive changes to the scope of research, research tools, or personnel involved on the project, please contact the Office of Research Integrity to determine whether or not additional review is required. Additional review is not required for small editorial changes to improve the clarity or readability of the research tools or other documents.